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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

A simple analytical model, suitable for use in systems analysis codes, is presented of the thermal radiation intensity from a nuclear burst as a function of time and yield and for an altitude range from near surface to 50 kilometers. The model divides the photon energy into six broad bands including infrared, red, green, blue, near ultraviolet and far ultraviolet.

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INTRODUCTION

Several analytical expressions have been developed which allow a rapid and fairly accurate determination of radiation intensity as a function of photon energy, time, weapon yield and burst altitude, and of radiated energy as a function of photon energy, yield, and burst height. The formulations were designed for use in chemistry calculations of photo-detachment and photo-dissociation.

The analytical expressions, contained in subroutine RADOUT (described in detail in Section 2) were obtained through the development of empirical formulations, based primarily on RADFLO code output and on limited MODEL III code data. More specifically, a set of equations was designed to allow the generation of a radiation power-time curve, appropriate for specified weapon yields and burst heights. The fractional contribution of power in each of a set of six photon energy bands is approximated as a function of time over the time period of interest.

On the basis of the power-time curve equations and the fractional energy band contribution versus time equations, an approximation can be made of the output power at any specified time for a particular set of input parameters. If the desired output is in terms of radiated energy, a simple trapezoidal time integration of power in the different energy bands is performed. Final outputs of power and energy are in units of photons/second and photons, respectively.

Ranges of interest for the parameters for use in specifying a case to be calculated were established early during the study, and are as follows:

Power$(h\nu, t, Y, h_B)$

Energy$(h\nu, Y, h_B)$

where

$h\nu$ 0.44 eV ~ 6 eV

t 10^{-6} sec ~ several sec

Y Few kT ~ several MT

h_B 0 km ~ 100 km

Applications of the power and energy formulations noted above are intended to be used in calculations of photo-detachment and photo-dissociation. Photo-detachment currently applies to several basic negative ions; O_2^-, O^-, O_3^-, CO_3^-, CO_4^-, NO_3^-, $ONOO^-$, and NO_2^-. With respect to photo-dissociation of ions, the power formulation (i.e., $P(h\nu,t,Y,h_B)$) is applicable. However, for the photo-dissociation of neutrals, the formulation reflecting integrated power ($E(h\nu,Y,h_B)$) is appropriate. An area of particular interest was identified which involves the photo-dissociation of O_3, and a specific band of wavelengths of 2550 Å ± 250 Å was stated as applicable. However, as is described in Section 2, subroutine RADOUT is sufficiently flexible to allow the specification of any particular photon energy of interest, and some range of energies around this point, within certain bounds.

The majority of data used in the formulation of the analytical expressions was obtained from RADFLO code runs. Only limited use was made

of data from MODEL III runs. Format of the RADFLO output data pertinent to the development of the aforementioned equations was as follows:

Real time (seconds)

Power escaping the grid

IR	$0.45 \leq h\nu \leq 1.82$	eV	(27550 Å - 6800 Å)
Red	$1.82 < h\nu \leq 2.137$	eV	(6800 Å - 5800 Å)
Green	$2.137 < h\nu \leq 2.583$	eV	(5800 Å - 4800 Å)
Blue	$2.583 < h\nu \leq 3.265$	eV	(4800 Å - 3800 Å)
Near UV	$3.265 < h\nu \leq 4.13$	eV	(3800 Å - 3000 Å)
Far UV	$4.13 < h\nu \leq 7.25$	eV	(3000 Å - 1710 Å)
Visible	$1.82 < h\nu \leq 3.265$	eV	(6800 Å - 3800 Å)
Thermal	$0.45 < h\nu \leq 4.13$	eV	(27550 Å - 3000 Å)
Total	$0.45 < h\nu \leq 12000$	eV	

Integrated Power

$$\int(IRP)dt$$

$$\int(VP)dt$$

$$\int(TP)dt$$

$$\int(NUVP + FUVP)dt$$

The initial set of data used in developing the formulation of equations was the 0 to 25 km, 4 kT to 4 MT set of bursts shown below. It is noted, however, that adjustments of the constants for the power and time equations ultimately included in subroutine RADOUT significantly reflect the 5 kT, 3 through 50 km data runs.

4 kT @ 2,5,10,18 and 25 km
40 kT @ 0,2,10,18 and 25 km
400 kT @ 5,10,18, and 25 km
4000 kT @ 2,5,10,18, and 25 km

10 kT @ 21 km

2000 kT @ 35 km

2000 kT @ 45 km

5 kT @ 3,9,19,27,31,34,37,42 and 50 km

4000 kT @ 60 km

SECTION 2
MODEL DESCRIPTION

The development of subroutine RADOUT, and the referenced power-time curve related equations, were initially implemented in a computer-time-share program called THERMAL1. This program consists of a simple driver, used to provide the case input and other quantities which are calculated in other parts of the overall code, and the radiation output subroutine, RADOUT. Subroutine RADOUT is currently also contained in code "MODEL" and is called by subroutine MODLON. There are some minor differences between the two subroutines, due primarily to operation of the subroutine in two different computer systems. However, the basic operation and structure of the two versions are virtually identical, and the time-share version, being more conveniently tabulated, is used here for purposes of describing the subroutine.

The flow diagram shown in Figure 1 reflects only subroutine RADOUT (Lines 660 to 4200) of the THERMAL1 routine listing shown in Figure 2. The listing is contained in the body of the report because of frequent references to its content.

Arguments in the subroutine call statement are used to establish the parameters for the case to be evaluated. The burst index, INDX, is used to obtain burst time (TB) and burst point density (RHOB) from EVENTX common, and yield (ETGAD) from GADGET common. If power output is to be calculated at a particular time, this is specified by the argument, TCALC. If, however, energy is to be calculated, this is accomplished by setting

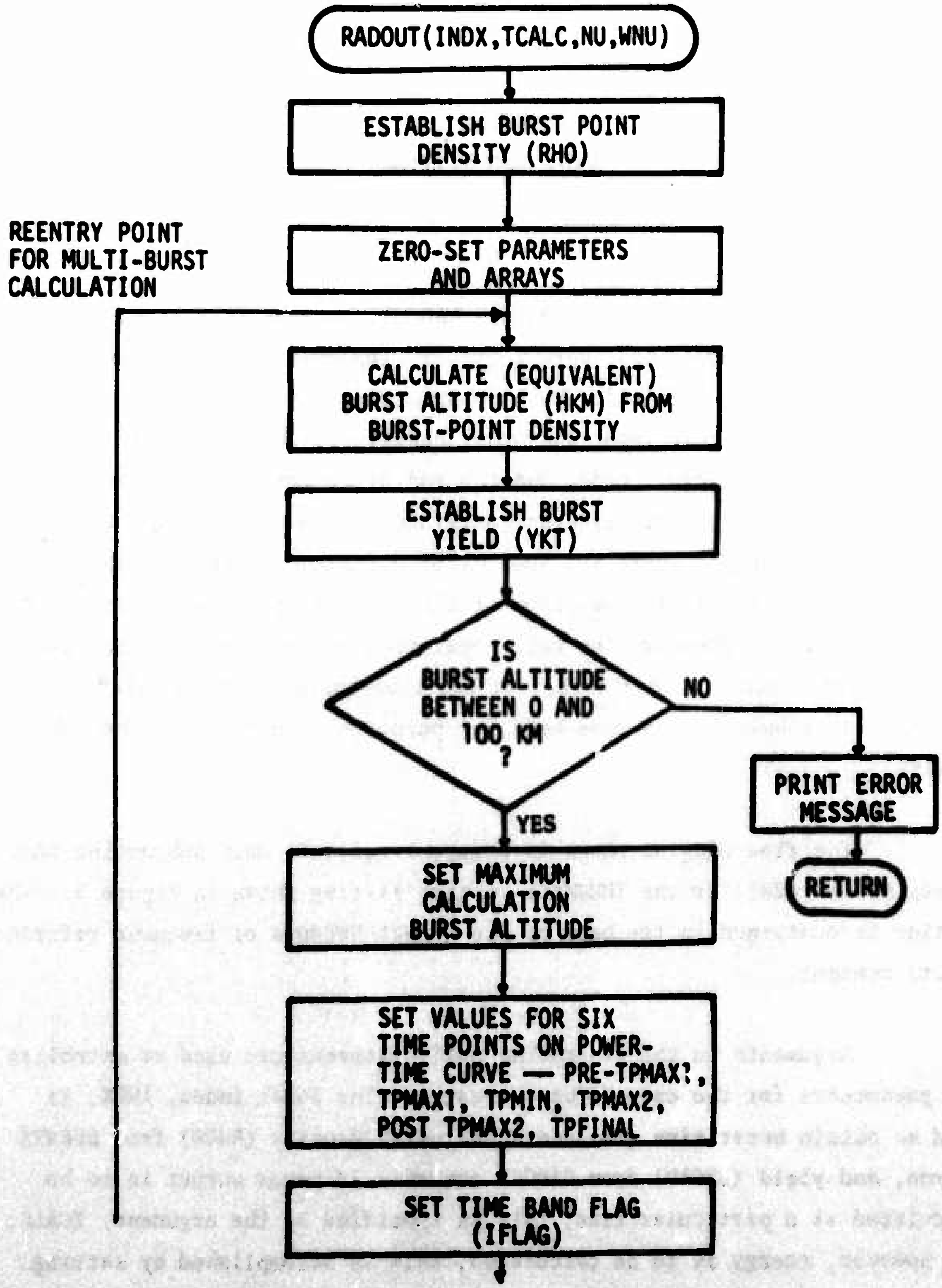


Figure 1. Flow diagram of subroutine RADOUT.

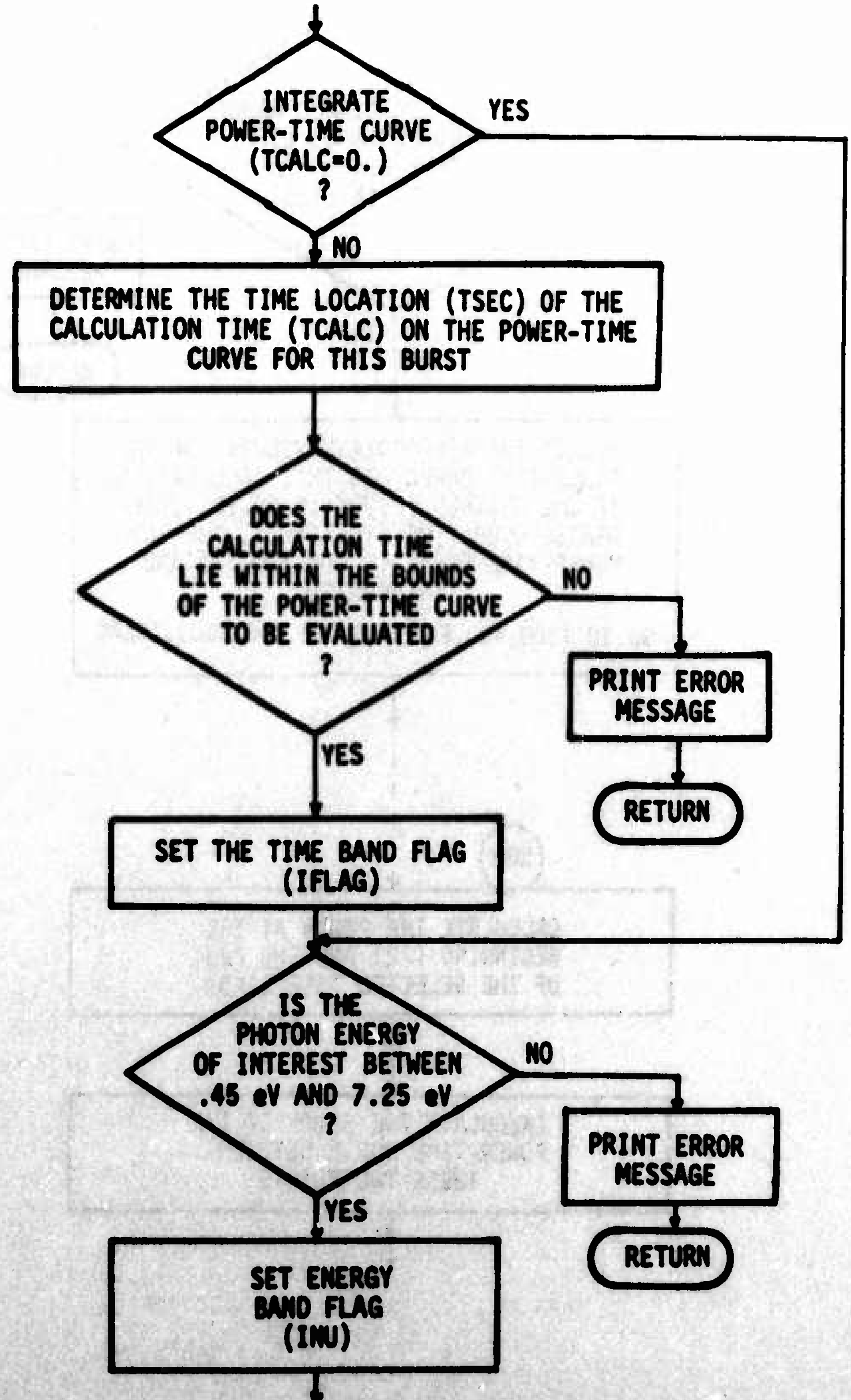


Figure 1 (continued). Flow diagram of subroutine RADOUT.

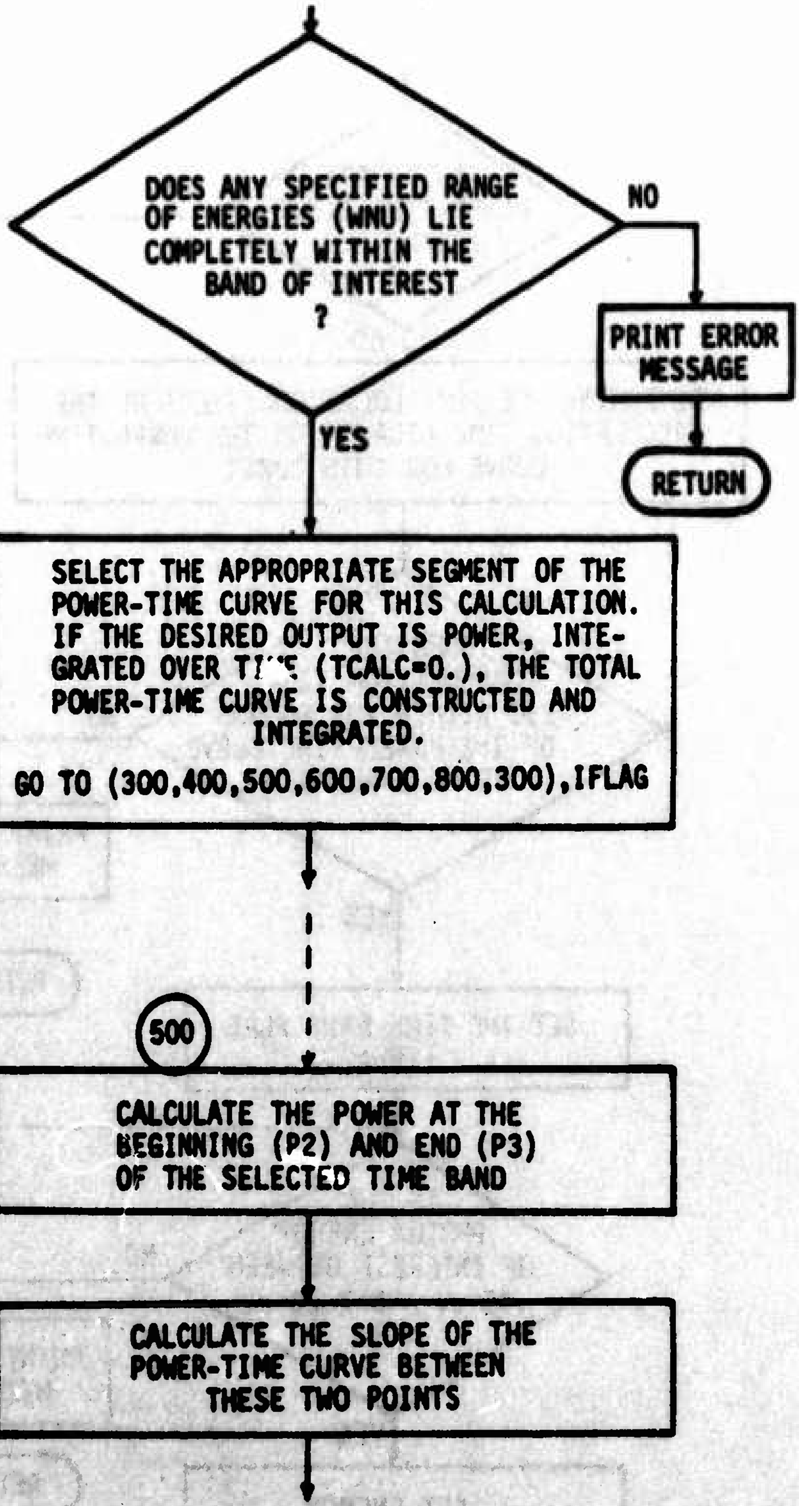


Figure 1 (continued). Flow diagram of subroutine RADOUT.

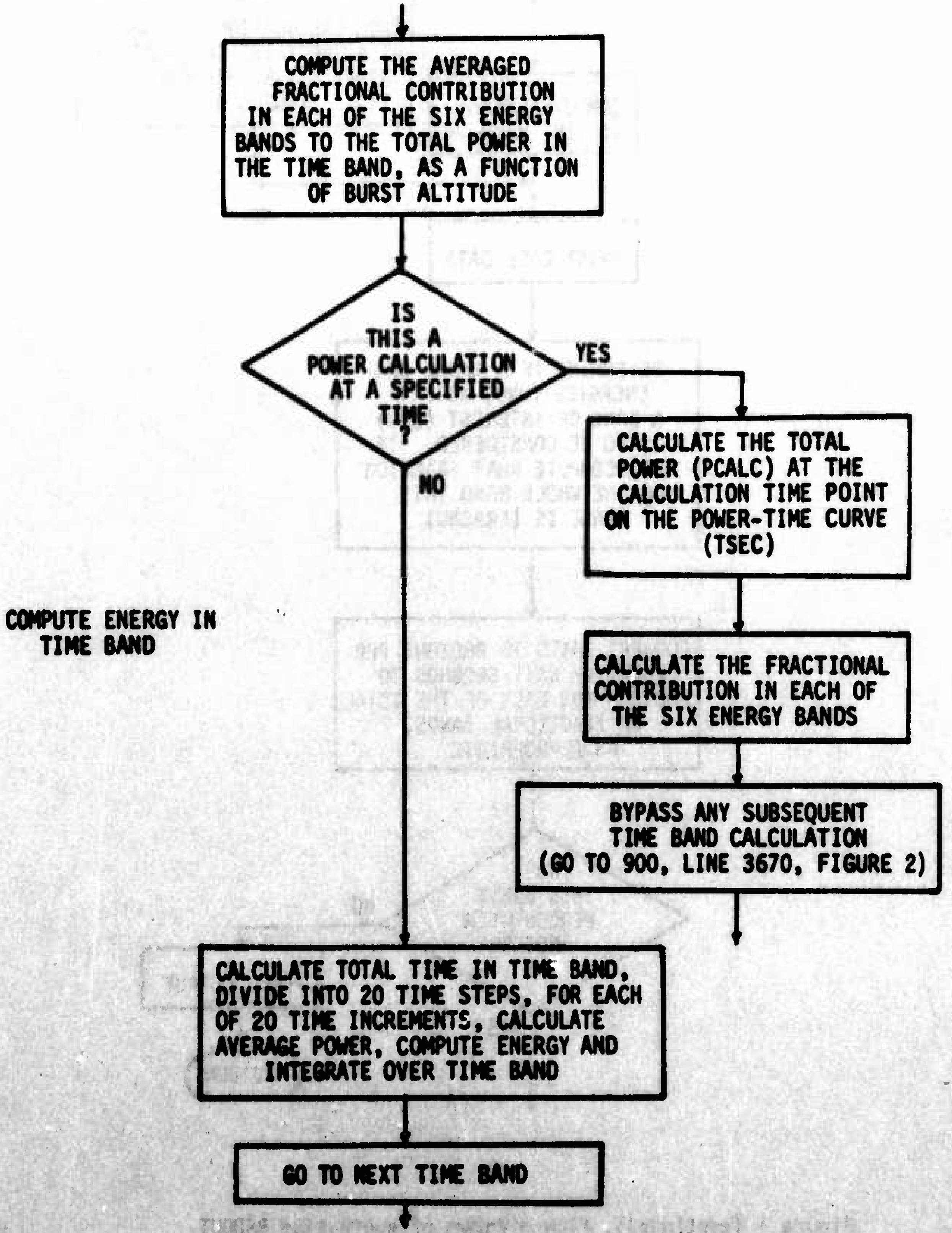


Figure 1 (continued). Flow diagram of subroutine RADOUT.

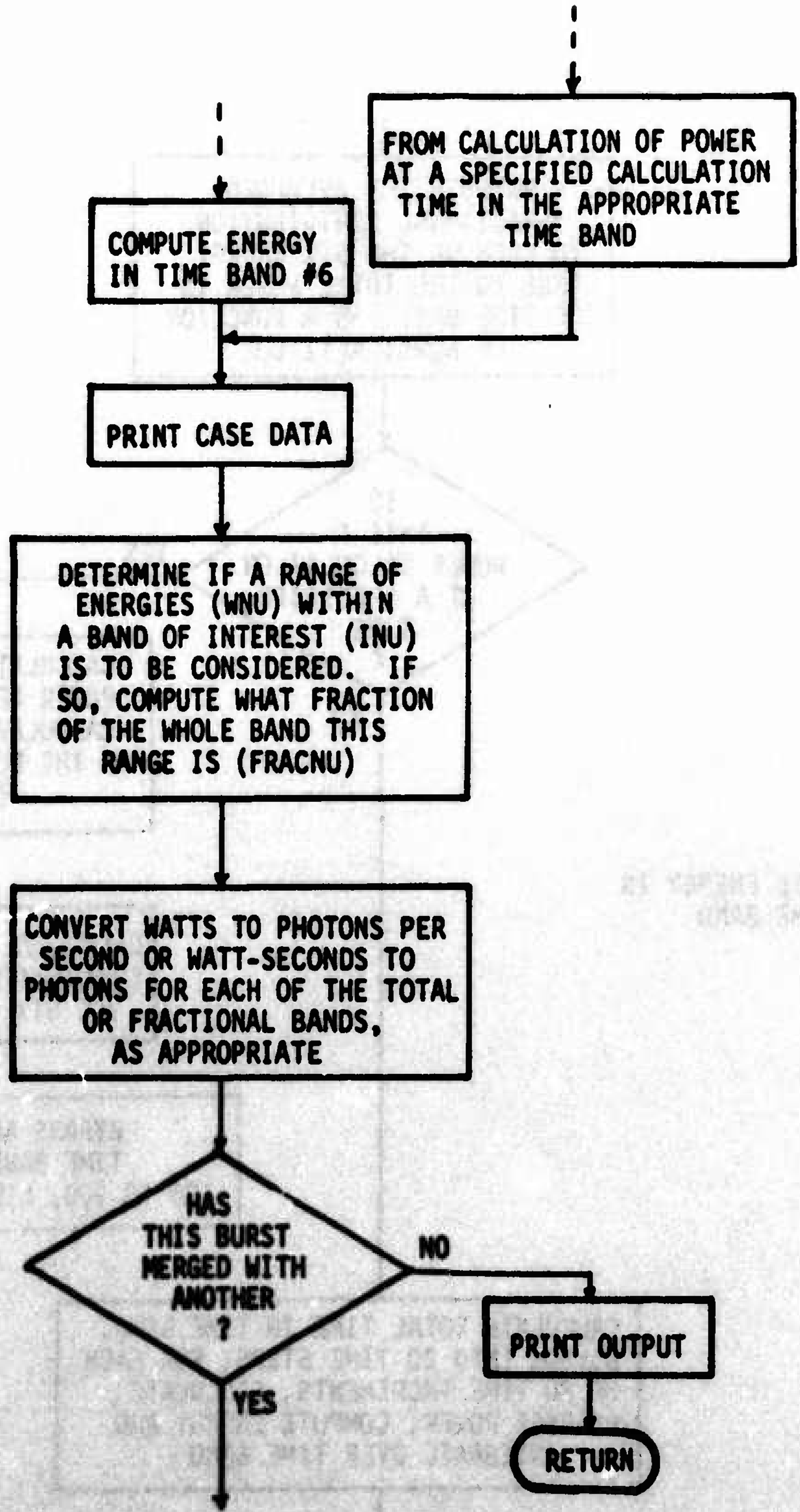


Figure 1 (continued). Flow diagram of subroutine RADOUT.

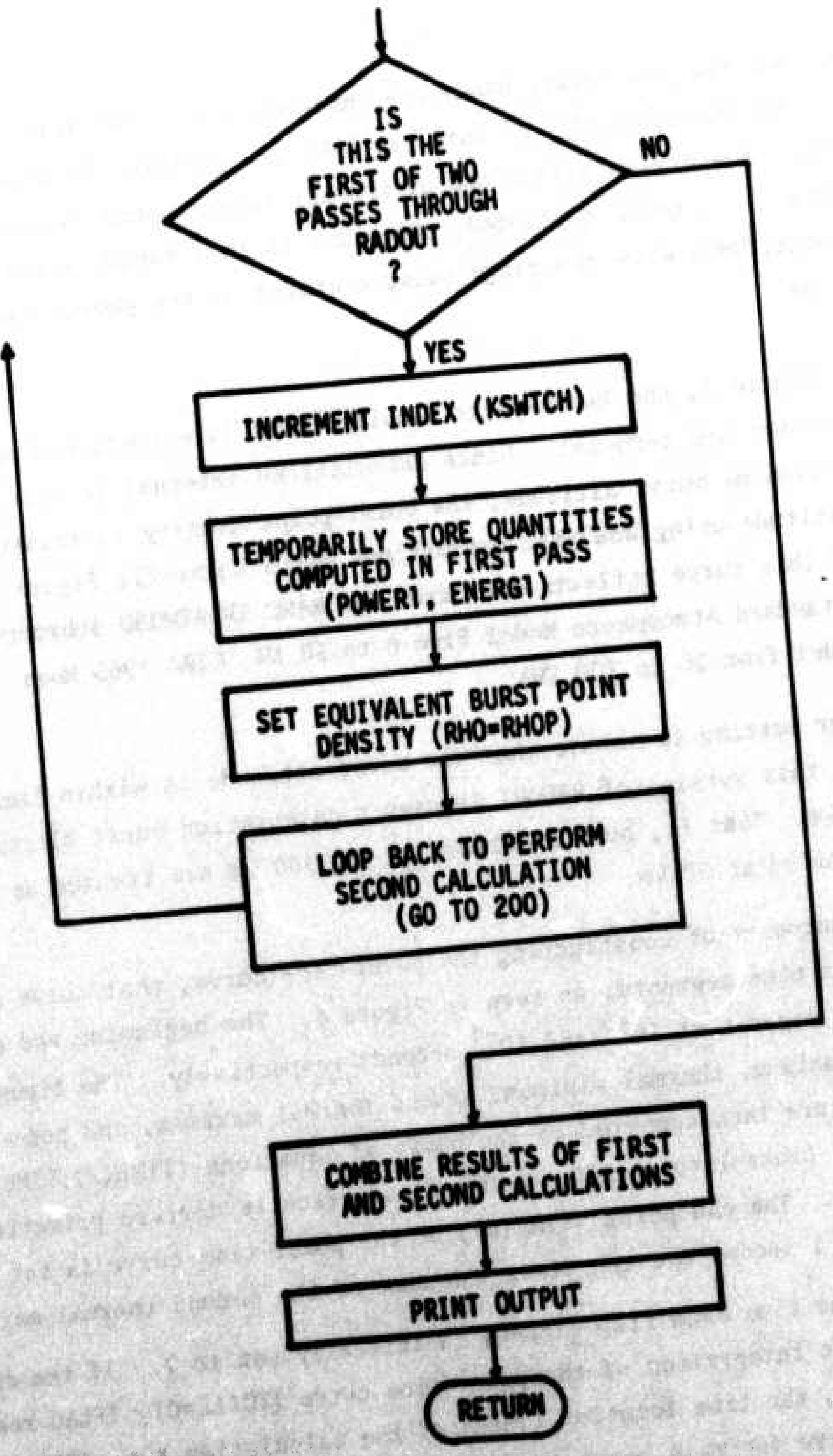


Figure 1 (continued). Flow diagram of subroutine RADOUT.

TCALC to 0., and the six energy bands are integrated over the total power-time curve. The photon energy of interest (eV) is specified by argument, NU, and if a range of energies within one of the six energy bands (Lines 780 to 840, Figure 2) is to be evaluated, the width of this range is specified by the argument, WNU, with the range being centered on the photon energy of interest (NU).

In Figure 1, the burst-point density (RHO) is established and various parameters are zero-set. Since calculations internal to this subroutine are based on burst altitude, the burst-point density is translated into burst altitude using analytic expressions which curve-fit Figure 3. The source of this curve reflects data from the RANC IV ATMOSD subroutine (1962 U. S. Standard Atmosphere Model From 0 to 50 KM, CIRA 1965 Mean Atmosphere Model from 50 to 100 KM).

After testing to insure that the burst altitude is within limits (0 to 100 km), this version of RADOUT imposes a calculation burst altitude maximum of 50 km. That is, bursts between 50 and 100 km are treated as if they were detonated at 50 km.

For purposes of constructing the power-time curve, that curve is divided into six time segments, as seen in Figure 4. The beginning and end of time band #1 are set at 10^{-6} and 10^{-4} seconds respectively. The times of first thermal maximum, thermal minimum, second thermal maximum, and post-second thermal maximum are then computed on the basis of equations (TIME(2),TIME(3), TIME(4),TIME(5), Lines 1640 → 1680, Figure 2) empirically derived primarily from RADFLO data. The end point (TIME(6)) of the power-time curve is set to the maximum value of 1 second and ten times the time of the second thermal maximum.

The time band flag (IFLAG) is initially set to 7. If the desired calculation is the integration of the power-time curve (TCALC=0), IFLAG remains set at 7. If not, the time location (TSEC) of the calculation time (TCALC) on the power-time curve for this burst is determined by subtracting burst time (TB) from the calculation time. A test is then made to insure that the calculation

THERMAL1

```
      REAL NU
      COMMON /EVENTX/NX,IDX,TB(10),HB(10),GCB(10),GLB(10),
     &                   IDGAD(10),RHOB(10),HSB(10),TEMB(10),URISE(10),
     &                   RDZERO(10),RHZERO(10),RUZERO(10),BXB(10),
     &                   BYB(10),BZB(10),LHUB(10),XALPHA(10),KALCH
      COMMON /GEOTD /NF,INDXF(10),RTF(10),RLF(10),HF(10),GCF(10),
     &                   GLF(10),HMAXF(10),HMINF(10),KINDF(10),TILTF(10),
     &                   AGE(10),NBTA,INDXD(20),DLABL(20),WDR(20),
     &                   HDR(20),RTBS(20),RLBS(20),HBS(20),RNBS(20),
     &                   GCBTA(20),GLBTA(20),TF(10),TCHAR(10),MRGID(10),
     &                   XFR(10),YFR(10),ZFR(10),ROT(10),POWER(10,6),
     &                   ENERGY(10,6)
      COMMON /GADGET/IDG,ETGAD(10),EFGAD(10),EHGAD(10),ENGAD(10),
     &                   EXGAD(10),IDFS(10),IDHS(10),IDNS(10),IDXS(10),
     &                   GADMAS(10),GDALPH(10)
      COMMON /RADFAC/F1(10),F2(10),RHOP(10)
      I=1
      INDX=I
      TCALC=0.
      NU=6.
      WNU=.100
      CALL RADOUT(INDX,TCALC,NU,WNU)
      DO 49 J=1,6
   49 PRINT 100,POWER(I,J),ENERGY(I,J)
   50 CONTINUE
  100 FORMAT(2(1X,1PE10.3))
      STOP
      END
      BLOCK DATA
      COMMON /EVENTX/NX,IDX,TB(10),HB(10),GCB(10),GLB(10),
     &                   IDGAD(10),RHOB(10),HSB(10),TEMB(10),URISE(10),
     &                   RDZERO(10),RHZERO(10),RUZERO(10),BXB(10),
     &                   BYB(10),BZB(10),LHUB(10),XALPHA(10),KALCH
      COMMON /GEOTD /NF,INDXF(10),RTF(10),RLF(10),HF(10),GCF(10),
     &                   GLF(10),HMAXF(10),HMINF(10),KINDF(10),TILTF(10),
     &                   AGE(10),NBTA,INDXD(20),DLABL(20),WDR(20),
     &                   HDR(20),RTBS(20),RLBS(20),HBS(20),RNBS(20),
     &                   GCBTA(20),GLBTA(20),TF(10),TCHAR(10),MRGID(10),
     &                   XFR(10),YFR(10),ZFR(10),ROT(10),POWER(10,6),
     &                   ENERGY(10,6)
      COMMON /GADGET/IDG,ETGAD(10),EFGAD(10),EHGAD(10),ENGAD(10),
     &                   EXGAD(10),IDFS(10),IDHS(10),IDNS(10),IDXS(10),
     &                   GADMAS(10),GDALPH(10)
      COMMON /RADFAC/F1(10),F2(10),RHOP(10)
      DATA TB/0.,1.E-4,1.E-3,5.E-3,1.E-2,5.E-2,7.E-2,1.E-1,5.E-1,7.E-1/
      DATA RHOB/1.011E-5,8.844E-4,4.609E-4,1.028E-4,2.983E-5,
     &             1.607E-5,1.011E-5,6.355E-6,3.074E-6,1.077E-6/
      DATA ETGAD/5.,5.,5.,5.,5.,5.,5.,5.,5.,5./
      DATA F1/1.,.9,.8,.7,.6,.5,.4,.3,.2,.1/
      DATA F2/1.0,1.03,1.07,1.1,1.13,1.17,1.2,1.23,1.27,1.3/
```

Figure 2. Listing of time-share program THERMAL1.

```
      DATA RHOP/2.983E-5,1.607E-5,1.011E-5,6.355E-6,3.074E-6,
     &         1.077E-6,1.077E-6,1.077E-6,1.077E-6,1.077E-6/
      END
C
C
C
      SUBROUTINE RADOUT(INDX,TCALC,NU,WNU)
C     THIS SUBROUTINE CALCULATES EITHER OF TWO TYPES OF OUTPUT FOR
C     A BURST OF SPECIFIED YIELD AND DETONATION ALTITUDE. THE FIRST
C     TYPE OF OUTPUT APPROXIMATES THE RADIATED POWER IN
C     EACH OF SIX FREQUENCY BANDS COVERING IR (0.45EV)
C     THROUGH FAR UV (7.25EV) AT A SPECIFIED CALCULATION TIME.
C     THE SECOND TYPE OF OUTPUT APPROXIMATES THE RADIATED ENERGY
C     RESULTING FROM THE INTEGRATION OF POWER IN EACH
C     OF THE SIX FREQUENCY BANDS OVER A TIME SPAN FROM 1.0E-6 SECONDS
C     TO APPROXIMATELY TEN TIMES THERMAL MAXIMUM.
C
C
C     THE SIX FREQUENCY BANDS ARE AS FOLLOWS:
C     BAND1  IR        0.45  .LE. HNU  .LE. 1.82   EV
C         2  RED       1.82  .LT. HNU  .LE. 2.137  EV
C         3  GREEN     2.173 .LT. HNU  .LE. 2.583  EV
C         4  BLUE      2.583 .LT. HNU  .LE. 3.265  EV
C         5  NEAR UV   3.265 .LT. HNU  .LE. 4.13   EV
C         6  FAR UV    4.13  .LT. HNU  .LE. 7.25   EV
C
C         INPUTS FROM CALL STATEMENT
C     INDX    = INDEX OF BURST
C     TCALC   = CALCULATION TIME (SEC). (TCALC=0. RESULTS IN
C               INTEGRATED POWER)
C     NU      = CENTER FREQUENCY OF INTEREST (EV).
C     WNU     = RANGE OF FREQUENCIES IN BAND OF INTEREST, CENTERED ON
C               CENTER FREQUENCY OF INTEREST (EV)
C
C         INPUTS FROM EVENTX COMMON
C     TB      = TIME OF BURST (SEC)
C     RHOB    = BURST POINT DENSITY (GM/CM3)
C
C         INPUTS FROM GADGET COMMON
C     ETGAD   = YIELD (ERGS)
C
C          OUTPUTS TO GEOTD COMMON
C      POWER = RADIATED POWER (PHOTONS PER SEC) IN ALL BANDS
C      ENERGY= INTEGRATED POWER (PHOTONS) IN ALL BANDS
C
C      NOTES-- 1. BURST ALTITUDE IS CONFINED TO 0-100KM. RESULTS FOR
C                 BURSTS ABOVE 50 KM ARE CURRENTLY BASED ON DATA
C                 CALCULATIONS AT 50 KM.
C              2. IF A RANGE OF FREQUENCIES WITHIN ONE OF THE SIX
C                 SPECIFIED OVERALL BANDS (I. E. ,IR, RED, GREEN, BLUE,
```

Figure 2 (Continued). Listing of time-share program THERMAL1.

```
C                    NEAR UV, FAR UV) IS TO BE EVALUATED--(WNU.GT.0.),
C                    THAT RANGE MUST LIE COMPLETELY WITHIN ONE OF THE SIX
C                    SPECIFIED BANDS, AND THE OUTPUT IS ACCORDINGLY
C                    PROPORTIONED (I.E., (WNU/TOTAL BANDWIDTH)*TOTAL
C                    PHOTONS IN THE BAND CONTAINING THE SPECIFIED
C                    FREQUENCY,NU).
C
      DIMENSION NUBAND(7),FRAC(6),TIME(6),TCON(20),PCON(20),PINT(21)
      DIMENSION RHOX(3),RFAC1(4),RFAC2(4)
      DIMENSION OUT(6),POWINT(6)
      DIMENSION ENERG1(6),POWER1(6)
      REAL NU,NUBAND,NUBOT,NUTOP
      DATA NUBAND/0.45,1.82,2.137,2.583,3.265,4.13,7.25/
      DATA TCON/-8.62,.317,.6,2.25,1.,-5.684,.407,.9,1.7,1.,
     &          -3.151,.4617,.9,5.04,1.,-.525,.233,.6,3.4,1./
      DATA PCON/31.35,.610,.9,5.,1.,27.031,.497,.9,13.8,1.,
     &          30.249,.582,.9,5.7,1.,26.86,.747,.9,4.,1./
      DATA RHOX/4.135E-4,3.996E-6,4.629E-8/
      DATA RFAC1/-9.2073,-6.4665,-7.6266,-5.7576/
      DATA RFAC2/-61.7332,-40.3799,-54.8009,-23.2363/
      COMMON /EVENTX/NX,IDX,TB(10),HB(10),GCB(10),GLB(10),
     &               IDGAD(10),RHOB(10),HSB(10),TEMB(10),VRISE(10),
     &               RIZERO(10),RHZERO(10),RUZERO(10),BXB(10),
     &               BYB(10),BZB(10),LHVB(10),XALPHA(10),KALCH
      COMMON /GEOTD /NF,INIXF(10),RTF(10),RLF(10),HF(10),GCF(10),
     &               GLF(10),HMAXF(10),HMINF(10),KINDF(10),TILTF(10),
     &               AGE(10),NBTA,INDXD(20),DLABL(20),WDR(20),
     &               HDR(20),RTBS(20),RLBS(20),HBS(20),RNBS(20),
     &               GCBTA(20),GLBTA(20),TF(10),TCHAR(10),MRGID(10),
     &               XFR(10),YFR(10),ZFR(10),ROT(10),POWER(10,6),
     &               ENERGY(10,6)
      COMMON /GADGET/IDG,ETGAD(10),EFGAD(10),EHGAD(10),ENGAD(10),
     &               EXGAD(10),IDFS(10),IDHS(10),IDNS(10),IDXS(10),
     &               GADMAS(10),GDALPH(10)
      COMMON /RADFAC/F1(10),F2(10),RHOF(10)
      RHO=RHOB(INDX)
      TSEC=0.
      KSWTCH=0
      DO 100 I=1,6
      ENERGY(INDX,I)=0.
      POWER(INDX,I)=0.
      POWINT(I)=0.
  100 OUT(I)=0.
  200 JSWTCH=1
      DO 205 I=1,3
  205 IF(RHO.LT.RHOX(JSWTCH)) JSWTCH=JSWTCH+1
      HKM=ALOG(RHO)*RFAC1(JSWTCH)+RFAC2(JSWTCH)
      YKT=ETGAD(INDX)
C          TEST FOR BURST HEIGHT WITHIN LIMITS
      IF(HKM.LT.0.0 .OR. HKM.GT.100.) GO TO 1000
```

Figure 2 (Continued). Listing of time-share program THERMAL1.

```
      IF(HKM.GT.50.) HKM=50.
C         SET VALUES FOR SIX TIMES (I.E., PRE TPMAX1, TPMAX1, TPMIN,
C         TPMAX2, POST TPMAX2,TPFINAL)
      TIME(1)=-9.21034
      TIME(2)=TCON(1)+TCON(2)*ALOG(YKT)+(((HKM/100)**TCON(3))*TCON(4))
      TIME(3)=TCON(6)+TCON(7)*ALOG(YKT)-(((HKM/100.)**TCON(8))*TCON(9))
      TIME(4)=TCON(11)+TCON(12)*ALOG(YKT)-(((HKM/100.)**TCON(13))*
     &     TCON(14))
      TIME(5)=TCON(16)+TCON(17)*ALOG(YKT)-(((HKM/100.)**TCON(18))*
     &     TCON(19))
      TIME(6)=AMAX1(0.,TIME(4)+ALOG(10.))
C         SET THE TIME BAND FLAG
      IFLAG=7
      IF(TCALC.EQ.0.) GO TO 240
      TSEC=TCALC-TB(INDX)
C         TEST CALCULATION TIME FOR LIMITS
      IF(TSEC.LT.1.E-6 .OR. TSEC.GT.EXP(TIME(6))) GO TO 1030
      DO 235 I=1,6
      IFLAG=I
  235 IF(TSEC.LT.EXP(TIME(I))) GO TO 240
  240 CONTINUE
C         TEST FREQUENCY OF INTEREST FOR LIMITS
      IF(NU.LT.0.45 .OR. NU.GT.7.25) GO TO 1040
C         SET FREQUENCY BAND OF INTEREST
      DO 265 I=2,7
      INU=I-1
  265 IF(NU.LT.NUBAND(I)) GO TO 272
C         INSURE THAT ANY RANGE OF FREQUENCIES BEING EVALUATED IS
C         COMPLETELY WITHIN ONE OF THE SPECIFIED BANDS
  272 CONTINUE
      NUBOT=NU-WNU/2.
      NUTOP=NU+WNU/2.
      IF(NUBOT.LT.NUBAND(INU).OR.NUTOP.GT.NUBAND(INU+1))GO TO 1020
C         SELECT APPROPRIATE SEGMENT OF THE POWER-TIME CURVE FOR
C         THIS CALCULATION. IF THE DESIRED OUTPUT IS INTEGRATED
C         POWER OVER TIME (TCALC=0.), THE TOTAL POWER-TIME CURVE
C         WILL BE CONSTRUCTED AND INTEGRATED
  280 CONTINUE
C
      GO TO (300,400,500,600,700,800,300),IFLAG
  300 P1=PCON(1)+PCON(2)*ALOG(YKT)+(((HKM/100.)**PCON(3))*PCON(4))
      FRAC(1)=.22
      IF(HKM.GT.20.) FRAC(1)=AMAX1(.04,.40-(.36*HKM/37.))
      FRAC(2)=.11
      IF(HKM.GT.20.)FRAC(2)=AMAX1(.02,.19-(.17*HKM/40.))
      IF(HKM.GT.40.)FRAC(2)=AMIN1(.06,.02+(.04*((HKM-40.)/10.)))
      FRAC(3)=.23
      IF(HKM.GT.20.) FRAC(3)=AMAX1(.05,.42-(.37*HKM/39.))
      FRAC(4)=.30
      IF(HKM.GT.27.)FRAC(4)=AMAX1(.10,.62-(.52*HKM/40.))
```

Figure 2 (Continued). Listing of time-share program THERMAL1.

THERMAL1

```
      FRAC(5)=.10
      IF(HKM.GT.14.)FFRAC(5)=AMIN1(.32,.10+(.22*((HKM-14.)/13.)))
      IF(HKM.GT.38.)FRAC(5)=AMAX1(.18,.32-(.14*((HKM-38.)/5.)))
      FRAC(6)=1.0-(FRAC(1)+FRAC(2)+FRAC(3)+FRAC(4)+FRAC(5))
      IF(FRAC(6).LT.0.) FRAC(6)=0.
      DO 330 I=1,6
  330 OUT(I)=FRAC(I)*EXP(P1)
      IF(IFLAG.NE.7)GO TO 900
      DO 340 I=1,6
  340 POWINT(I)=OUT(I)*((EXP(TIME(1))-1.0E-6))
C
  400 P2=PCON(1)+PCON(2)*ALOG(YKT)+(((HKM/100.)**PCON(3))*PCON(4))
      FRAC(1)=AMIN1(.13,.13*(HKM/19.))
      IF(HKM.GT.27.)FRAC(1)=AMAX1(.05,.45-(.40*HKM/34.))
      FRAC(2)=.12*HKM/31.
      IF(HKM.GT.31.)FRAC(2)=AMAX1(.04,.13-(.09*((HKM-31.)/3.)))
      FRAC(3)=FRAC(1)+.01
      FRAC(4)=AMIN1(.29,.29*HKM/15.)
      IF(HKM.GT.27.)FRAC(4)=AMAX1(.11,.78-.67*(HKM/37.))
      FRAC(5)=AMIN1(.37,.09+.28*(HKM/19.))
      IF(HKM.GT.29.)FRAC(5)=AMAX1(.16,.88-(.72*HKM/40.))
      FRAC(6)=1.0-(FRAC(1)+FRAC(2)+FRAC(3)+FRAC(4)+FRAC(5))
      IF(FRAC(6).LT.0.)FRAC(6)=0.
      DO 421 I=1,6
  421 OUT(I)=FRAC(I)*EXP(P2)
      IF(IFLAG.NE.7)GO TO 900
      DO 440 I=1,6
  440 POWINT(I)=POWINT(I)+OUT(I)*(EXP(TIME(2))-EXP(TIME(1)))
C
  500 P3=PCON(6)+PCON(7)*ALOG(YKT)+(((HKM/100.)**PCON(8))*PCON(9))
      IF(IFLAG.EQ.7)GO TO 505
      P2=PCON(1)+PCON(2)*ALOG(YKT)+(((HKM/100.)**PCON(3))*PCON(4))
  505 SLOPE3=(P3-P2)/(TIME(3)-TIME(2))
      FRAC(1)=.23-.17*HKM/36.
      IF(HKM.GT.36.)FRAC(1)=AMIN1(.17,.06+(.11*((HKM-36.)/14)))
      FRAC(2)=.07
      FRAC(3)=.10
      FRAC(4)=.14
      IF(HKM.GT.15.)FRAC(4)=.07+.12*HKM/27.
      IF(HKM.GT.27.)FRAC(4)=.44-.32*HKM/36.
      IF(HKM.GT.36.)FRAC(4)=AMIN1(.19,.12+(.07*((HKM-36.)/14.)))
      FRAC(5)=.15
      IF(HKM.GT.13.)FRAC(5)=.02+.26*HKM/27.
      IF(HKM.GT.27.)FRAC(5)=AMAX1(.17,.63-(.46*HKM/34.))
      FRAC(6)=1.0-(FRAC(1)+FRAC(2)+FRAC(3)+FRAC(4)+FRAC(5))
      IF(FRAC(6).LT.0.)FRAC(6)=0.
      IF(IFLAG.EQ.7) GO TO 540
      PCALC=EXP(SLOPE3*(ALOG(TSEC)-TIME(2))+P2)
      DO 536 I=1,6
  536 OUT(I)=FRAC(I)*PCALC
```

Figure 2 (Continued). Listing of time-share program THERMAL1.

```
      GO TO 900
540   TIDELT=(TIME(3)-TIME(2))/20.
      TIDELTS=(EXP(TIME(3))-EXP(TIME(2)))/20.
      PINT(1)=P2
      DO 580 I=2,21
      PINT(I)=SLOPE3*(FLOAT(I-1)*TIDELT)+P2
      PCALC=(PINT(I)+PINT(I-1))/2.
      DO 575 J=1,6
      OUT(J)=FRAC(J)*EXP(PCALC)
575   POWINT(J)=POWINT(J)+OUT(J)*TIDELTS
580   CONTINUE
C
600   P4=PCON(11)+PCON(12)*ALOG(YKT)+(((HKM/100.)**PCON(13))*PCON(14))
      IF(IFLAG.EQ.7)GO TO 605
      P3=PCON(6)+PCON(7)*ALOG(YKT)+(((HKM/100.)**PCON(8))*PCON(9))
605   SLOPE4=(P4-P3)/(TIME(4)-TIME(3))
      FRAC(1)=AMAX1(.12,.68-(.68*(HKM/38.)))
      IF(HKM.GT.37.)FRAC(1)=AMIN1(.25,.12+(.13*((HKM-37.)/13.)))
      FRAC(2)=.15
      IF(HKM.GT.22.)FRAC(2)=AMAX1(.07,.37-(.37*(HKM/37.)))
      FRAC(3)=AMIN1(.25,.13+.12*(HKM/15.))
      IF(HKM.GT.22.)FRAC(3)=AMAX1(.11,.60-(.60*(HKM/37.)))
      FRAC(4)=.05+.21*(HKM/27.)
      IF(HKM.GT.27.)FRAC(4)=AMAX1(.16,.80-(.80*(HKM/40.)))
      FRAC(5)=.01
      IF(HKM.GT.19.)FRAC(5)=AMIN1(.20,.01+.19*((HKM-19.)/12.))
      FRAC(6)=1.0-(FRAC(1)+FRAC(2)+FRAC(3)+FRAC(4)+FRAC(5))
      IF(FRAC(6).LT.0)FRAC(6)=0.
      IF(IFLAG.EQ.7) GO TO 640
      PCALC=EXP(SLOPE4*(ALOG(TSEC)-TIME(3))+P3)
      DO 634 I=1,6
634   OUT(I)=FRAC(I)*PCALC
      GO TO 900
640   TIDELT=(TIME(4)-TIME(3))/20.
      TIDELTS=(EXP(TIME(4))-EXP(TIME(3)))/20.
      PINT(1)=P3
      DO 680 I=2,21
      PINT(I)=SLOPE4*(FLOAT(I-1)*TIDELT)+P3
      PCALC=(PINT(I)+PINT(I-1))/2.
      DO 675 J=1,6
      OUT(J)=FRAC(J)*EXP(PCALC)
675   POWINT(J)=POWINT(J)+OUT(J)*TIDELTS
680   CONTINUE
C
700   P5=PCON(16)+PCON(17)*ALOG(YKT)+(((HKM/100.)**PCON(18))*PCON(19))
      IF(IFLAG.EQ.7)GO TO 705
      P4=PCON(11)+PCON(12)*ALOG(YKT)+(((HKM/100.)**PCON(13))*PCON(14))
705   SLOPE5=(P5-P4)/(TIME(5)-TIME(4))
      FRAC(1)=.40-.19*(HKM/41.)
      IF(HKM.GT.41.)FRAC(1)=AMIN1(.30,.21+.09*((HKM-41.)/9.))
```

Figure 2 (Continued). Listing of time-share program THERMAL1.

THERMAL1

```
      FRAC(2)=AMAX1(.04,.10-.06*(HKM/50.))
      FRAC(3)=FRAC(2)+.02
      FRAC(4)=.22-.05*(HKM/50.)
      IF(HKM.GT.32.)FRAC(4)=AMAX1(.13,.58-(.58*HKM/47.))
      FRAC(5)=AMIN1(.32,.17+.15*(HKM/22.))
      IF(HKM.GT.34.)FRAC(5)=AMAX1(.24,.32-.08*((HKM-34.)/4.))
      FRAC(6)=1.0-(FRAC(1)+FRAC(2)+FRAC(3)+FRAC(4)+FRAC(5))
      IF(FRAC(6).LT.0.)FRAC(6)=0.
      IF(IFLAG.EQ.7) GO TO 740
      PCALC=EXP(SLOPE5*(ALOG(TSEC)-TIME(4))+P4)
      DO 734 I=1,6
  734 OUT(I)=FRAC(I)*PCALC
      GO TO 900
  740 TDELT=(TIME(5)-TIME(4))/20.
      TDELTS=(EXP(TIME(5))-EXP(TIME(4)))/20.
      PINT(1)=P4
      DO 780 I=2,21
      PINT(I)=SLOPE5*(FLOAT(I-1)*TDELT)+P4
      PCALC=(PINT(I)+PINT(I-1))/2.
      DO 775 J=1,6
      OUT(J)=FRAC(J)*EXP(PCALC)
  775 POWINT(J)=POWINT(J)+OUT(J)*TDELTS
  780 CONTINUE
C
  800 IF(IFLAG.EQ.7)GO TO 810
      P4=PCON(11)+PCON(12)*ALOG(YKT)+(((HKM/100.)**PCON(13))*PCON(14))
      P5=PCON(16)+PCON(17)*ALOG(YKT)+(((HKM/100.)**PCON(18))*PCON(19))
      SLOPE5=(P5-P4)/(TIME(5)-TIME(4))
  810 SLOPE6=SLOPE5
      P6=SLOPE6*(TIME(6)-TIME(5))+P5
      FRAC(1)=.32
      IF(HKM.GT.9)FRAC(1)=AMAX1(.15,.40-(.40*(HKM/45.)))
      FRAC(2)=AMAX1(.03,.08-.08*(HKM/36.))
      FRAC(3)=FRAC(2)
      FRAC(4)=.24-.24*(HKM/40.)
      IF(HKM.GT.31.)FRAC(4)=AMIN1(.14,.06+.03*((HKM-31.)/19.))
      FRAC(5)=AMIN1(.36,.27+.09*(HKM/9.))
      IF(HKM.GT.15.)FRAC(5)=AMAX1(.18,.53-(.53*(HKM/45.)))
      IF(HKM.GT.35.)FRAC(5)=AMIN1(.29,.18+.11*((HKM-35.)/11.))
      FRAC(6)=1.0-(FRAC(1)+FRAC(2)+FRAC(3)+FRAC(4)+FRAC(5))
      IF(FRAC(6).LT.0.)FRAC(6)=0.
      IF(IFLAG.EQ.7) GO TO 840
      PCALC=EXP(SLOPE6*(ALOG(TSEC)-TIME(5))+P5)
      DO 834 I=1,6
  834 OUT(I)=FRAC(I)*PCALC
      GO TO 900
  840 TDELT=(TIME(6)-TIME(5))/20.
      TDELTS=(EXP(TIME(6))-EXP(TIME(5)))/20.
      PINT(1)=P5
      DO 880 I=2,21
```

Figure 2 (Continued). Listing of time-share program THERMAL1.

```
3600       PINT(I)=SLOPE6*(FLOAT(I-1)*TIDELT)+P5
3610       PCALC=(PINT(I)+PINT(I-1))/2.
3620       DO 875 J=1,6
3630       OUT(J)=FRAC(J)*EXP(PCALC)
3640   875 POWINT(J)=POWINT(J)+OUT(J)*TIDELTS
3650   880 CONTINUE
3660C
3670   900 PRINT,"      H          Y          T          NU          WNU"
3680       PRINT 1160,HKM,YKT,TSEC,NU,WNU
3690       PRINT," TIME(1)    TIME(2)    TIME(3)    TIME(4)    TIME(5)    TIME(6)"
3700       PRINT 1180,EXP(TIME(1)),EXP(TIME(2)),EXP(TIME(3)),EXP(TIME(4)),
3710      &EXP(TIME(5)),EXP(TIME(6))
3720       PRINT,"        P1          P2          P3          P4          P5",
3730      &  "       P6"
3740       PRINT 1195,EXP(P1),EXP(P2),EXP(P3),EXP(P4),EXP(P5),EXP(P6)
3750       PRINT 1250,SLOPE3,SLOPE4,SLOPE5,SLOPE6
3760       DO 910 I=1,6
3770       FRACNU=1.
3780       FJOPPH=(1.602*10.**(-19))*((NUBAND(I+1)+NUBAND(I))/2.)
3790       IF(I.EQ.INU.AND.WNU.GT.0.) FRACNU=WNU/(NUBAND(I+1)-NUBAND(I))
3800       ENERGY(INDX,I)=POWINT(I)/(FJOPPH*FRACNU)
3810       POWER(INDX,I)=OUT(I)/(FJOPPH*FRACNU)
3820       PRINT 1230,POWER(INDX,I),ENERGY(INDX,I)
3830   910 CONTINUE
3840       IF(F1(INDX).EQ.1.) GO TO 940
3850       KSWTCH=KSWTCH+1
3860       GO TO(920,930),KSWTCH
3870   920 DO 925 I=1,6
3880       ENERG1(I)=ENERGY(INDX,I)
3890   925 POWER1(I)=POWER(INDX,I)
3900       RHO=RHOP(INDX)
3910       GO TO 200
3920   930 DO 935 I=1,6
3924       FRACNU=1.
3926       FJOPPH=(1.602*10.**(-19))*((NUBAND(I+1)+NUBAND(I))/2.)
3928       IF(I.EQ.INU.AND.WNU.GT.0.) FRACNU=WNU/(NUBAND(I+1)-NUBAND(I))
3930       ENERGY(INDX,I)=F1(INDX)*ENERG1(I)+
3940      &    ((1.-F1(INDX))*F2(INDX)*(POWINT(I)/(FJOPPH*FRACNU)))
3950       POWER(INDX,I)=F1(INDX)*POWER1(I)+
3960      &    ((1.-F1(INDX))*F2(INDX)*(OUT(I)/(FJOPPH*FRACNU)))
3970       PRINT 1230,POWER(INDX,I),ENERGY(INDX,I)
3980   935 CONTINUE
3990       GO TO 9999
4000   940 DO 945 I=1,6
4010   945 PRINT 1230,POWER(INDX,I),ENERGY(INDX,I)
4020       GO TO 9999
4030  1000 PRINT," BURST ALTITUDE OUTSIDE OF LIMITS"
4040       GO TO 9999
4050  1020 PRINT," SEGMENT IN MORE THAN ONE OF SPECIFIED BANDS"
4060       GO TO 9999
4070  1030 PRINT," CALCULATION TIME OUTSIDE OF LIMITS"
4080       GO TO 9999
4090  1040 PRINT," CALCULATION FREQUENCY BEYOND LIMITS"
```

Figure 2 (Continued). Listing of time-share program THERMAL1.

THERMAL1

```
           GO TO 9999
     1160  FORMAT(1P5E10.2)
     1180  FORMAT(1P6E10.2)
     1195  FORMAT(1P6E10.2)
     1200  FORMAT(6(5X,F3.2))
     1210  FORMAT(6(1X,1PE10.3))
     1230  FORMAT(2(1X,1PE10.3))
     1220  FORMAT(6(1X,1PE10.3))
     1250  FORMAT(4(3X,1PE10.3))
     9999  RETURN
           END
```

Figure 2 (Continued). Listing of time-share program THERMAL1.

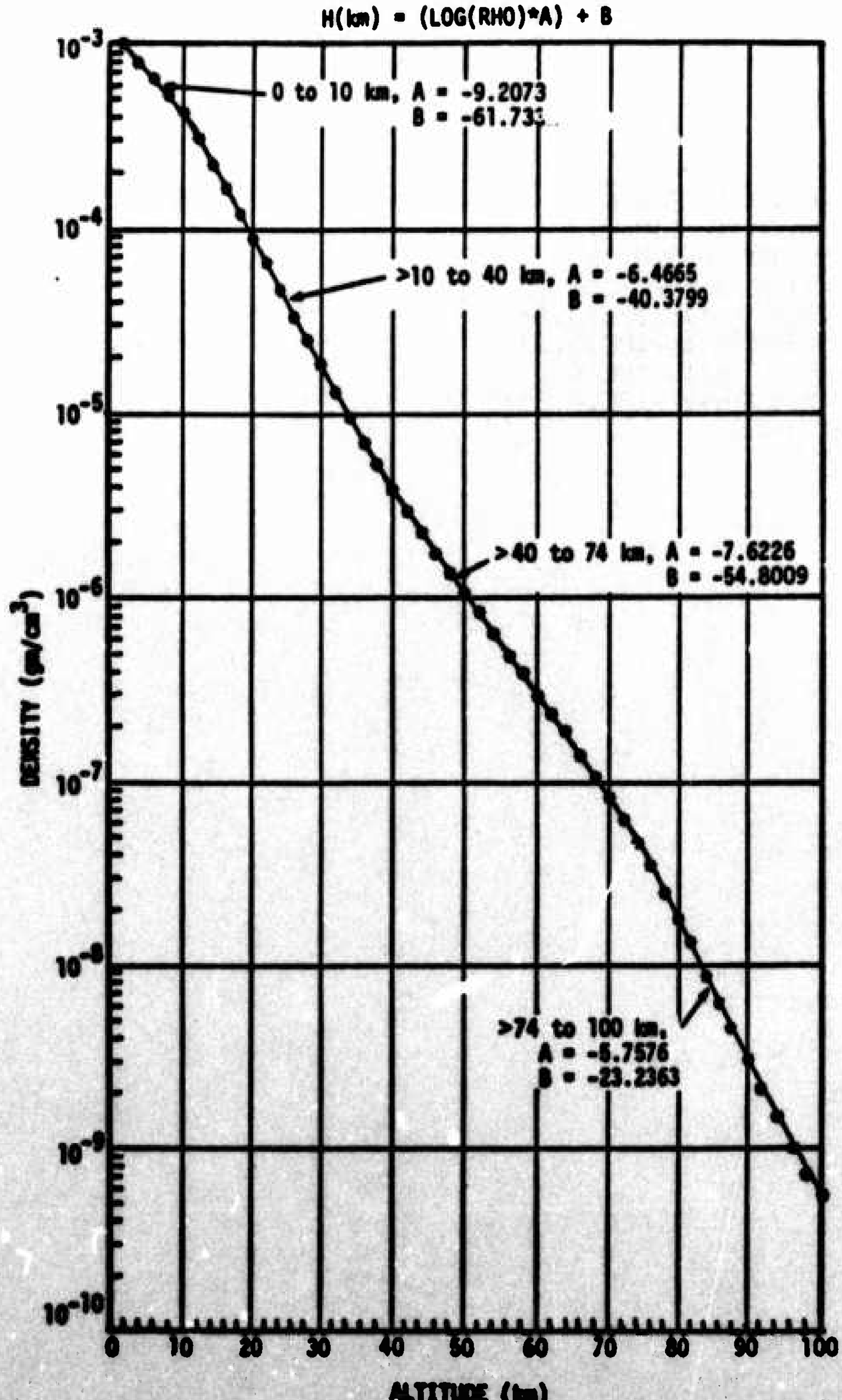


Figure 3. Burst point altitude versus burst point density.

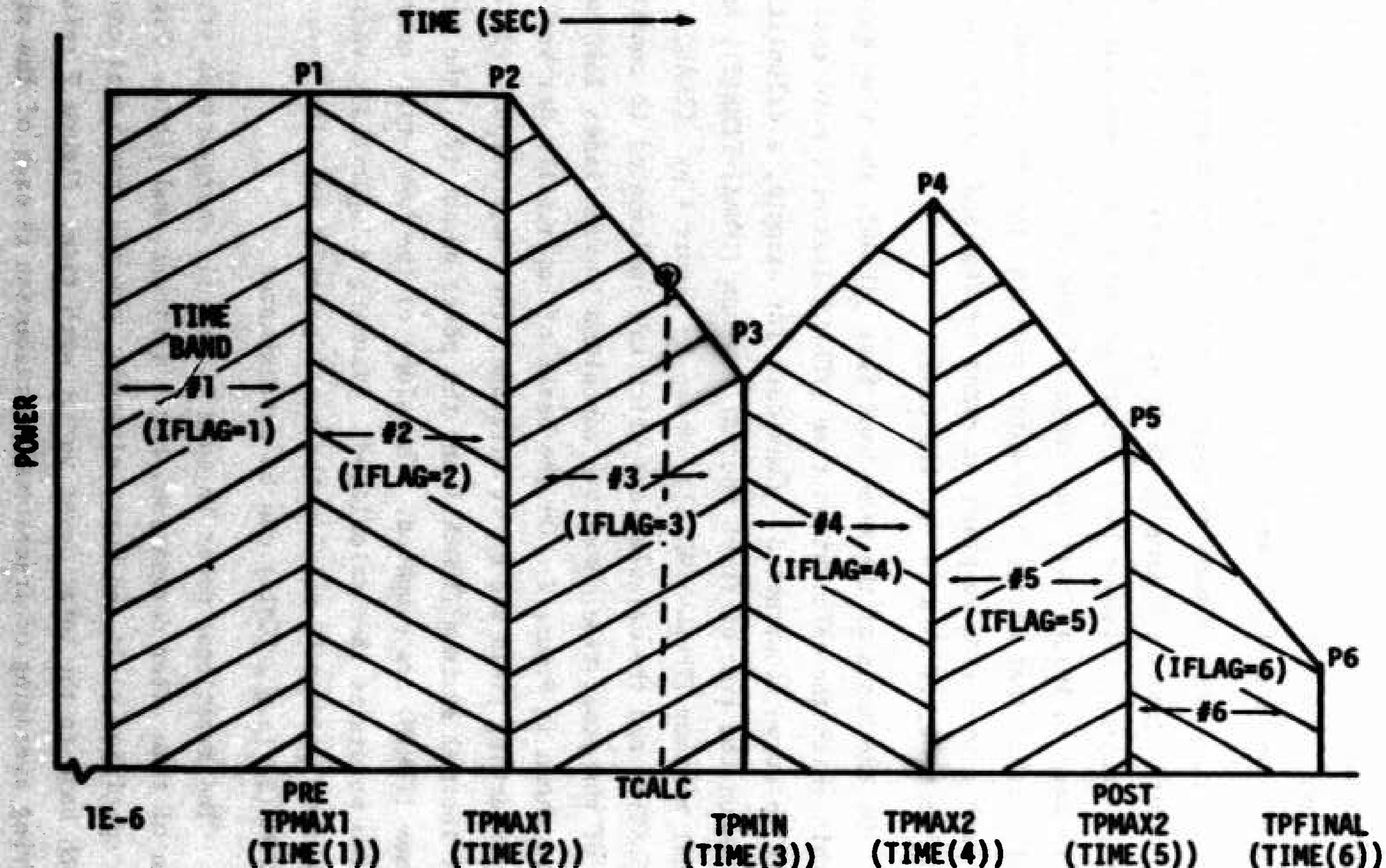


Figure 4. Power-time curve time segments.

time lies within the bounds (1E-6 to TIME(6), Figure 4) of the applicable power-time curve. If not, an error message is printed, and control is returned to the calling subroutine. Otherwise, the time band flag (IFLAG) is set to the specific power-time curve time band within which the calculation time lies.

Next, a test is made to insure that the photon energy of interest is within the limits shown in Figure 5, (0.45 eV 7.25 eV). If it is not, an error message is printed, followed by a return to the calling subroutine. Otherwise, a test is made to insure that any range of energies to be considered lies completely within that energy band which contains the photon energy of interest, with a provision to print an error message and return to the calling subroutine, if this is not the case.

On the basis of the time band flag (IFLAG), the time band (see Figure 4) within which the calculation time (TCALC) lies will have that portion of the power-time curve constructed. Consider, for example, a calculation time which lies between the time of first thermal maximum (TPMAX1=TIME(2)) and the time of thermal minimum (TPMIN=TIME(3)), shown in Figure 4 by (TCALC). In this case, IFLAG=3, and the calculations which are implemented to construct this portion of the power-time curve are contained between lines 2390 and 2700 of the listing shown in Figure 2. On the basis of empirically derived analytical expressions reflecting yield and burst altitude, the power output (P2) at the time of first thermal maximum (TPMAX1) and the power output (P3) the time of thermal minimum (TPMIN) are computed. The slope of the power-time curve between the two points is then calculated. Assuming a logarithmic variation of power with time between P2 and P3, the total power at any time between TIME(2) and TIME(3) (e.g., TCALC) can be approximated.

The fractional power in each of the six energy bands varies as a function of time after detonation, burst altitude, and yield. Figure 6 shows, for a specified yield and burst altitude, how the fractional contribution of each band to the total power varies with time. Figure 7 reflects some simplifying averaging of fractional contribution in each of the six time

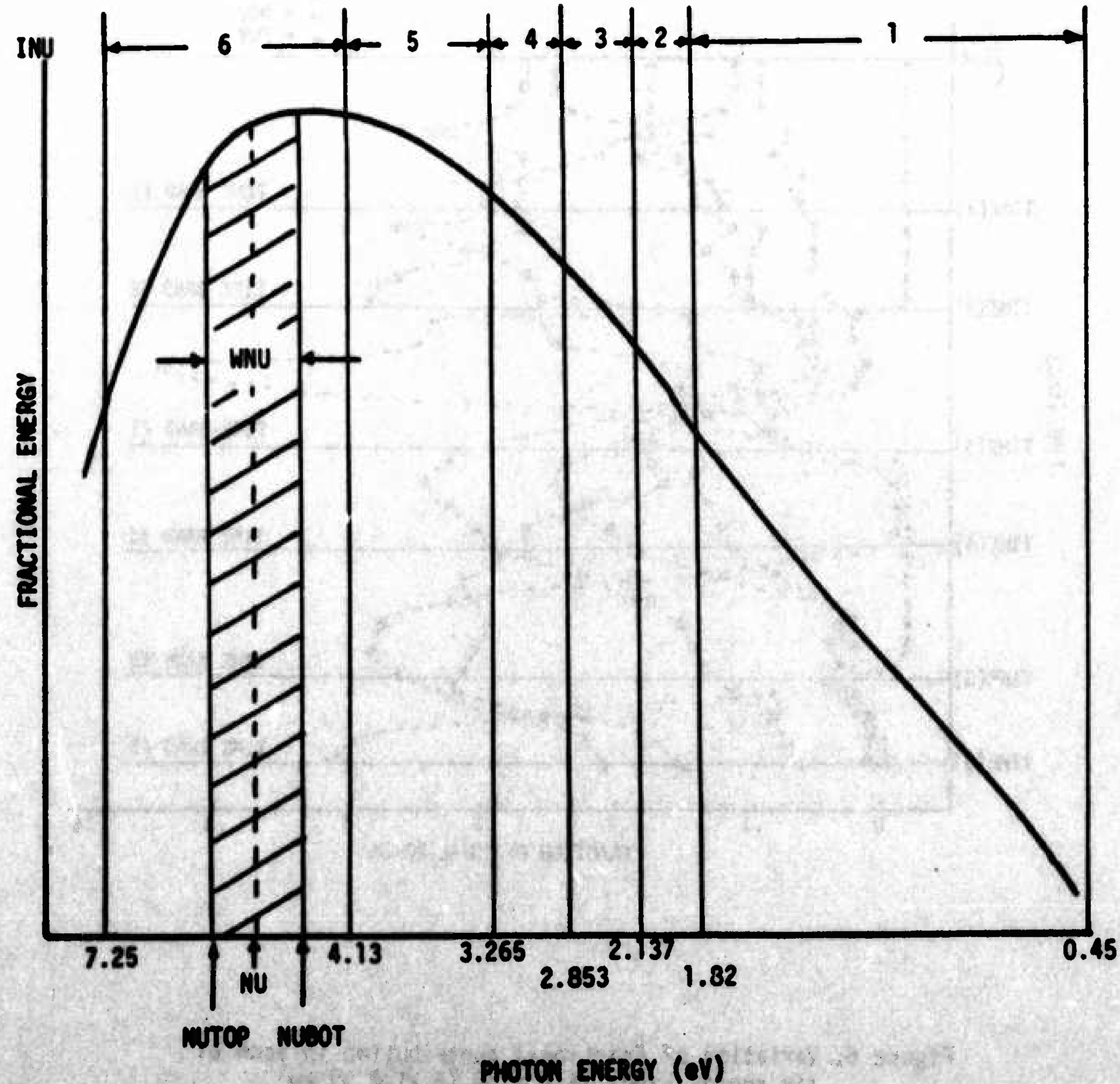


Figure 5. Limits of photon energies, specific bands and range of energies within a specific band.

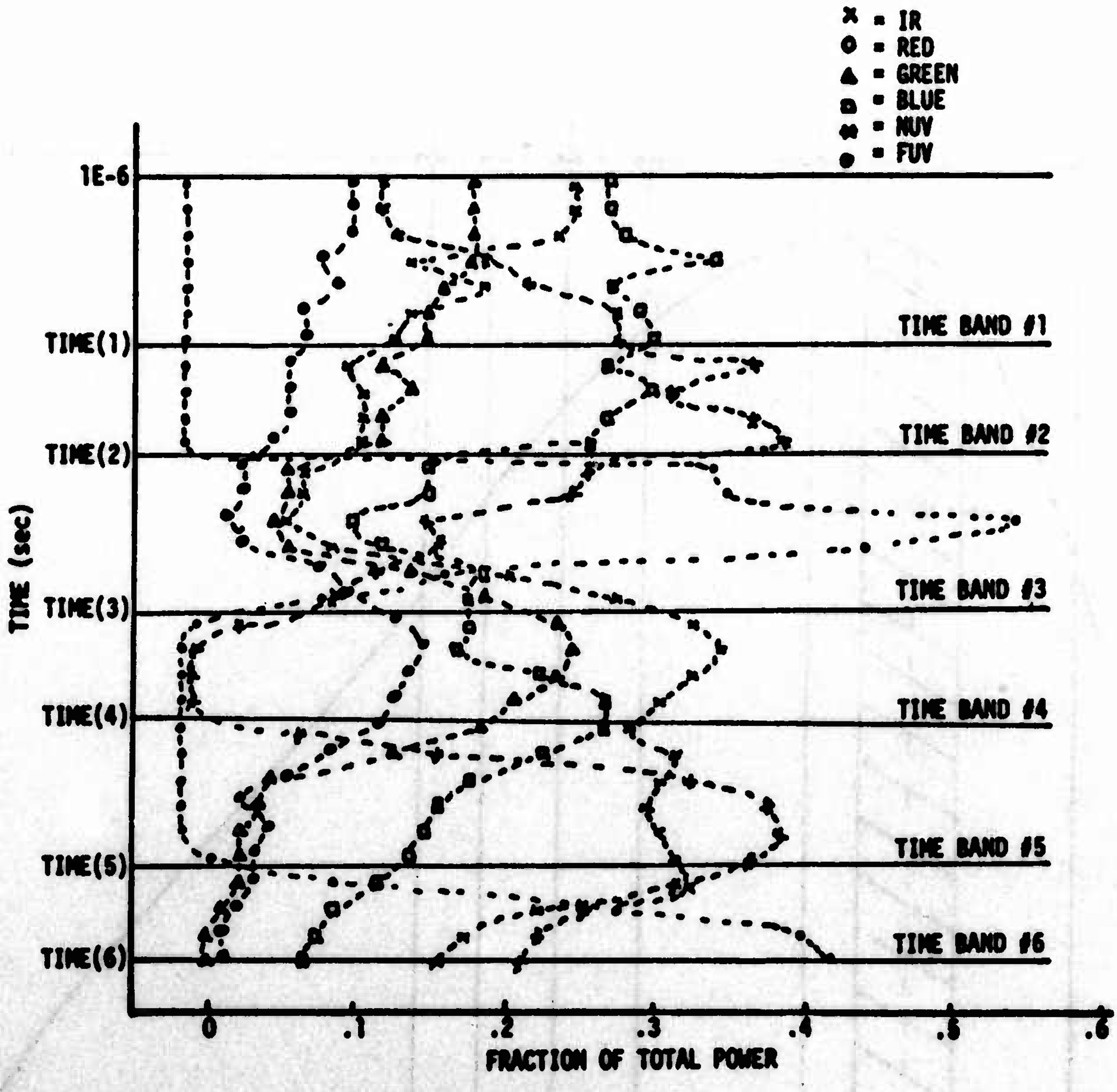


Figure 6. Variation of fractional contribution in each of six energy bands with time (5 kT @ 19 km).

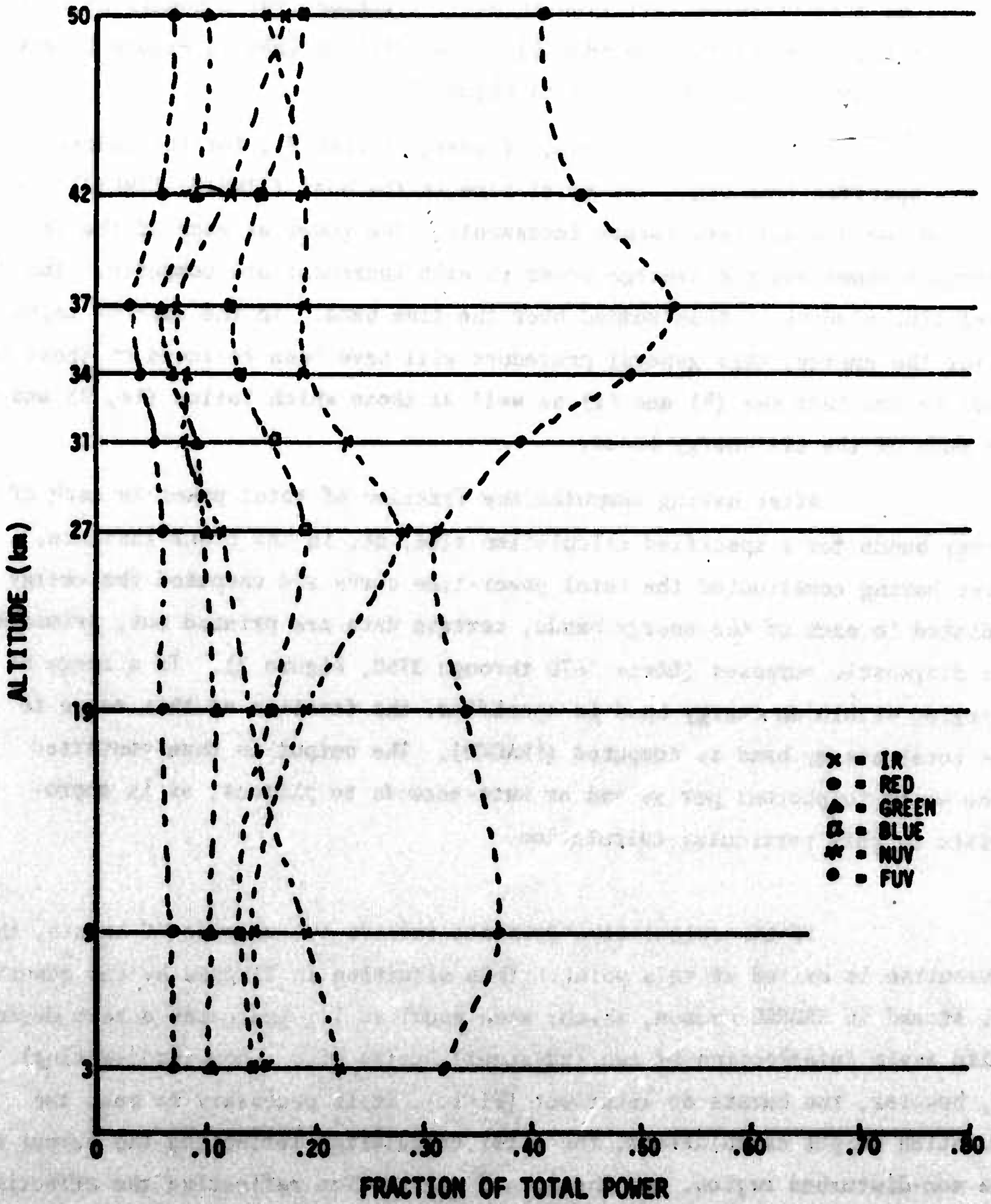


Figure 7. Variation of fractional contribution in each of six energy bands with altitude, time band #3.

bands, and shows the variation of averaged fractional contribution in time band #3, as a function of variation in burst altitude, for a specified yield. The quantities FRAC(1) through FRAC(6), lines 2430 to 2550 in Figure 2, are designed to approximate the curves in Figure 7.

If the desired output is energy (IFLAG=7), for the calculation of this specific time band, the total time in the band (TIME(3)-TIME(2)) is computed and divided into twenty increments. The power at each of the incremental times and the average power in each increment are computed. The power-time product is then summed over the time band. In the case of calculating the energy, this general procedure will have been followed on those time bands before this one (#1 and #2) as well as those which follow (#4, #5 and #6), for each of the six energy bands.

After having computed the fraction of total power in each of the energy bands for a specified calculation time, or, in the other instance, after having constructed the total power-time curve and computed the energy radiated in each of the energy bands, certain data are printed out, primarily for diagnostic purposes (Lines 3670 through 3750, Figure 2). If a range of energies within an energy band is specified, the fraction of this range to the total energy band is computed (FRACNU). The output is then converted from watts to photons per second or watt-seconds to photons, as is appropriate to this particular calculation.

If the calculation does not involve the merging of bursts, the subroutine is exited at this point. This situation is flagged by the quantity F1, stored in RADFAC common, which, when equal to 1., indicates a zero degree solid angle intersection of two (adjacent) bursts (i.e., non-intersecting). If, however, two bursts do intersect (F1<1.), it is necessary to make two radiation output calculations, the first calculation reflecting the output in the non-disturbed region, and the second calculation reflecting the effective radiated output in the previous-burst-modified environment.

In the first pass through RADOUT (KSWTCH=1, Line 3850) in a merged-burst case (F1<1.), the calculations reflect the non-disturbed region calculation. The calculation results of this first pass are temporarily stored (ENERG1,POWER1), and the equivalent burst point density (RHOP) for the second-pass calculation is set.

After the second set of calculations, the results of the two calculations are combined (Lines 3930-3960), the results are printed out and control is returned to the calling subroutine, the values of the current calculation having been stored in GEOTD common (i.e., POWER(10,6), ENERGY (10,6)).

SECTION 3
APPLICATION AND RESULTS

Subroutine RADOUT is currently structured so as to cause the power and energy arrays for a specific burst to initially be set to zero each time the subroutine is called. Thus, it is anticipated that the results of a calculation for a particular burst will be used before the subroutine is called to do another calculation for the same burst at, for example, a different calculation time, or in a different part of the frequency spectrum.

Although a particular photon energy is specified when a calculation is to be performed, the subroutine is currently set up to calculate power or energy, as the case may be, in all six energy bands. The results of the calculations are in units of photons per second or photons in each of the six total bands, except, as indicated in Section 2, when a range of energies within the band of interest is specified. The output, in this case, is then modified to reflect the fraction of the total band that the specified range of energies represents.

The basic equations for calculating the times and powers are generally of the form:

$$\text{Power or Time} = e^{(a + b \times \ln(y)) \pm ((h/100)^{c}) \times d}$$

where a, b, c, and d are constants

y = yield (kt), and

h = burst altitude (km)

The specific equations and constants currently in RADOUT are:

$$\text{TIME}(1) = e^{-9.21034}$$

$$\text{TIME}(2) = e^{((-8.62 + .317 \times \ln(y)) + ((h/100)^{.6} \times 2.25)}$$

$$\text{TIME}(3) = e^{((-5.684 + .407 \times \ln(y)) - ((h/100)^{.9} \times 1.7)}$$

$$\text{TIME}(4) = e^{((-3.151 + .4617 \times \ln(y)) - ((h/100)^{.9} \times 5.04)}$$

$$TIME(5) = e^{((-.525 + .233 \times \ln(y)) - ((h/100)^{.6} \times 3.4)}$$

TIME(6) = Maximum of 10 × TIME(4) and 1 second

$$P1 = e^{((31.35 + .610 \times \ln(y)) + ((h/100)^{.9} \times 5.0)}$$

$$P2 = e^{((31.35 + .610 \times \ln(y)) + ((h/100)^{.9} \times 5.0)}$$

$$P3 = e^{((27.031 + .497 \times \ln(y)) + ((h/100)^{.9} \times 13.8)}$$

$$P4 = e^{((30.249 + .582 \times \ln(y)) + ((h/100)^{.9} \times 5.7)}$$

$$P5 = e^{((26.86 + .747 \times \ln(y)) + ((h/100)^{.9} \times 4.0)}$$

P6 = Extrapolation of curve from P5, on the basis of slope P4 - P5, out to TIME(6)

The values currently assigned to each of the constants reflect an attempt to reasonably match the empirical data over a relatively broad range of burst altitudes and yields. It is noted that the constants can easily be modified to match more recent or higher confidence data.

Figure 8 provides a comparison between the results of a specific case calculated by the RADFLO code, and the same case resulting from the analytical expressions contained in subroutine RADOUT. The dashed curve in Figure 8 shows the total power (watts) versus time after detonation (seconds) for a 5 kT burst at a burst altitude of 9 kilometers, based on data generated by the RADFLO code. The solid curve reflects the same case as calculated by subroutine RADOUT. In comparing the curves, it is seen that the times of PMAX1, PMIN, and PMAX2 correspond fairly well, as do the general shapes of the overall power-time curves, although the magnitude of the synthesized power at PMIN ($\approx 6 \times 10^{-3}$ seconds) is high by a factor of about 2. As previously noted, the coefficients which control the location and magnitude of the time and power points have been selected so as to cover a wide range of yield and burst altitude parameters. Additionally, in cases of integrating power over time, an adjustment of some of the coefficients has been made to cause the energy obtained by a simple trapezoidal integration of the synthesized curve to approximate the RADFLO code output. Consequently, differences do exist. However, it appears that the approximations of power and energy provided by subroutine RADOUT are not unreasonable, when considered in the context of uncertainties in the source data.

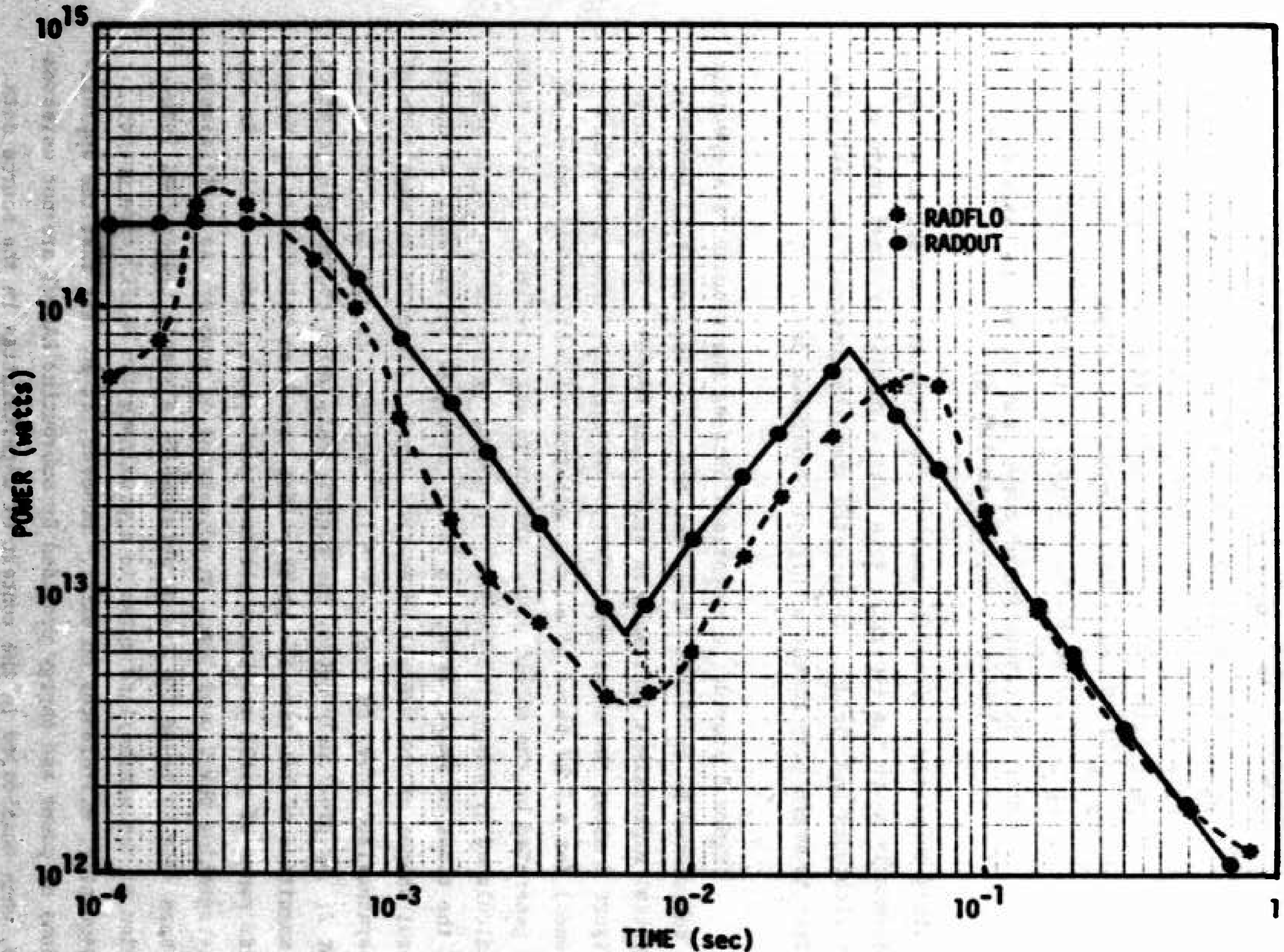


Figure 8. Comparison between RADFLO and RADOUT calculations.

APPENDIX A
DATA BASE

The data contained in this appendix were extracted from some of the RADFLO code calculations identified in Section 1 of this report. The data for various yields and burst altitudes were set up in individual data files to facilitate the data manipulation required for the development and verification of the analytical expressions contained in subroutine RADOUT. For each of the events described in this appendix, three pages of data are presented. The format is as follows:

CASE	weapon yield/burst altitude
TIME	time after detonation, seconds
IRP	power radiated in the IR band, watts
VISP	power radiated in the visible (red, green, and blue) band, watts
NRUV	power radiated in the near UV band, watts
FRUV	power radiated in the far UV band, watts
TOTP	total power escaping the grid, watts
INTI	energy radiated in the IR band, kilotons
INTV	energy radiated in the visible (red, green, and blue) band, kilotons
INTN	energy radiated in the near UV band, kilotons
INTF	energy radiated in the far UV band, kilotons
INTT	total energy escaping the grid (kilotons)

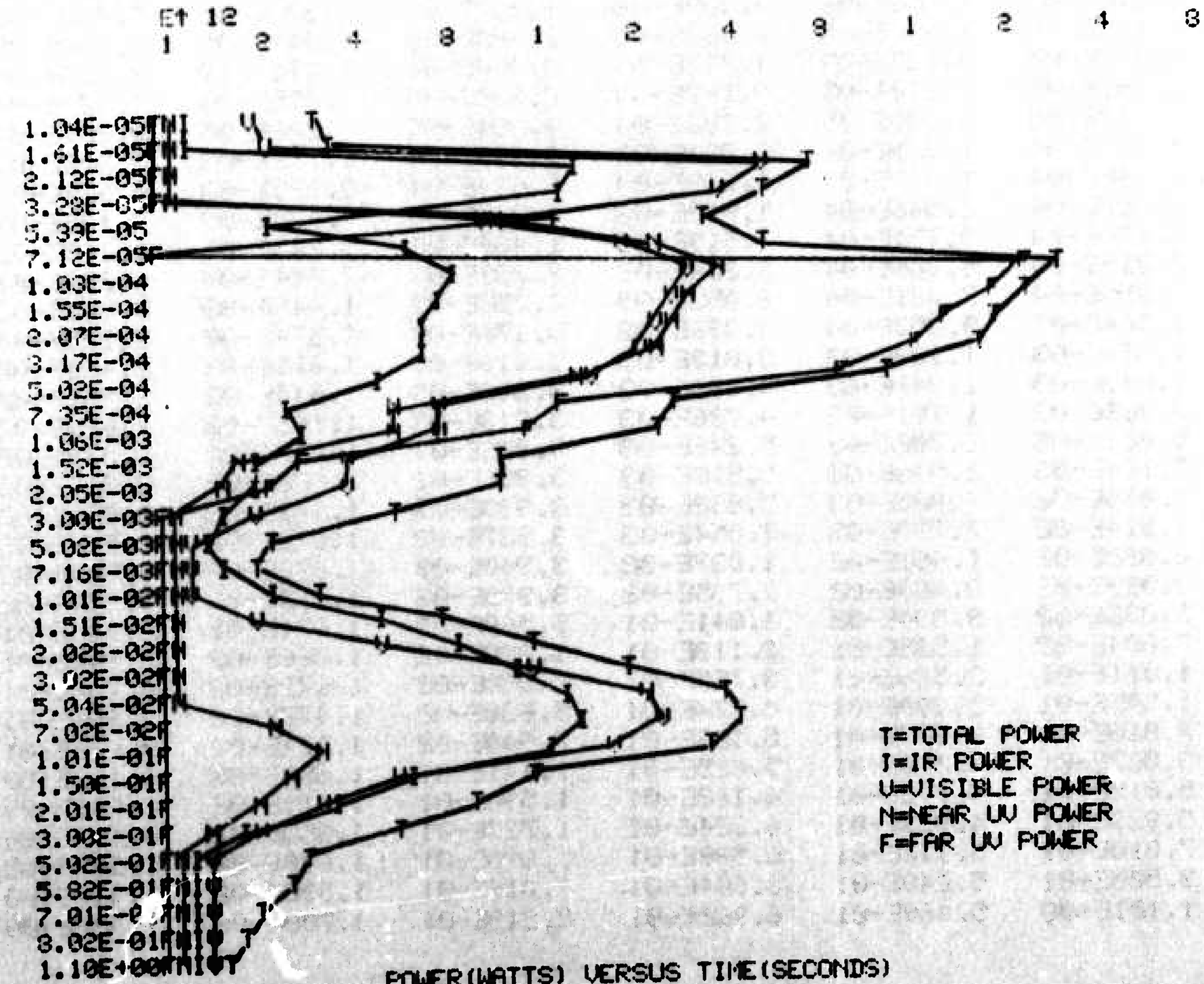
The third page of each set of data is a coarse plot of the power-time curve for that case, in which the powers (watts) for only the three highest decades are presented.

CASE 5 / 3

TIME	IRP	VISP	NRUU	FRUU	TOTP
1.042E-05	6.680E+11	1.810E+12	1.300E+09	1.050E+08	2.480E+12
1.612E-05	7.260E+11	2.010E+12	1.310E+09	1.010E+08	2.740E+12
2.125E-05	1.390E+13	4.740E+13	2.380E+09	2.190E+08	6.130E+13
3.278E-05	1.290E+13	3.330E+13	1.030E+10	1.440E+09	4.620E+13
5.393E-05	1.850E+12	7.520E+12	8.240E+12	1.280E+13	3.040E+13
7.122E-05	4.550E+12	1.980E+13	2.240E+13	7.030E+04	4.670E+13
1.029E-04	6.450E+12	2.940E+13	3.470E+13	2.510E+14	3.210E+14
1.548E-04	5.790E+12	2.580E+13	2.970E+13	2.040E+14	2.650E+14
2.067E-04	5.160E+12	2.220E+13	2.490E+13	1.600E+14	2.120E+14
3.170E-04	5.060E+12	2.090E+13	2.260E+13	1.340E+14	1.830E+14
5.019E-04	3.980E+12	1.490E+13	1.480E+13	7.400E+13	1.080E+14
7.355E-04	2.140E+12	5.930E+12	4.410E+12	1.220E+13	2.460E+13
1.064E-03	2.270E+12	5.880E+12	4.100E+12	1.020E+13	2.240E+13
1.524E-03	1.640E+12	3.150E+12	1.610E+12	2.360E+12	8.780E+12
2.049E-03	1.780E+12	3.140E+12	1.480E+12	1.940E+12	8.330E+12
3.002E-03	1.430E+12	1.800E+12	5.920E+11	4.910E+11	4.300E+12
5.021E-03	1.160E+12	7.130E+11	7.730E+10	2.940E+10	1.980E+12
7.164E-03	1.350E+12	4.400E+11	9.980E+09	1.930E+09	1.810E+12
1.005E-02	2.000E+12	5.510E+11	1.670E+09	5.100E+07	2.550E+12
1.514E-02	3.980E+12	1.710E+12	9.100E+08	7.850E+05	5.700E+12
2.022E-02	6.390E+12	3.990E+12	3.110E+09	6.070E+04	1.040E+13
3.023E-02	9.640E+12	1.010E+13	5.240E+10	1.300E+05	1.980E+13
5.035E-02	1.280E+13	2.030E+13	7.400E+11	1.170E+06	3.380E+13
7.024E-02	1.410E+13	2.400E+13	1.870E+12	5.040E+06	4.000E+13
1.011E-01	1.190E+13	1.810E+13	2.630E+12	6.770E+06	3.260E+13
1.505E-01	4.550E+12	4.370E+12	2.020E+12	2.890E+07	1.090E+13
2.010E-01	2.710E+12	2.570E+12	1.750E+12	4.700E+07	7.030E+12
3.003E-01	1.500E+12	1.510E+12	1.230E+12	6.100E+07	4.230E+12
5.015E-01	8.140E+11	8.900E+11	7.380E+11	9.350E+07	2.440E+12
5.823E-01	6.980E+11	7.810E+11	6.350E+11	9.390E+07	2.110E+12
7.010E-01	5.800E+11	6.740E+11	5.340E+11	8.900E+07	1.790E+12
8.020E-01	5.170E+11	6.200E+11	4.830E+11	8.310E+07	1.620E+12
1.101E+00	4.280E+11	5.470E+11	4.140E+11	8.750E+07	1.390E+12

TIME	INTI	INTU	INTN	INTF	INTT
1.042E-05	5.910E-07	1.292E-06	3.000E-09	1.720E-10	1.886E-06
1.612E-05	1.550E-06	3.929E-06	6.000E-09	-9.020E-10	5.484E-06
2.125E-05	1.836E-05	6.302E-05	2.000E-08	-1.243E-08	8.139E-05
3.278E-05	5.527E-05	1.712E-04	3.000E-08	-4.311E-10	2.265E-04
5.393E-05	7.212E-05	2.192E-04	2.008E-05	3.235E-05	3.437E-04
7.122E-05	8.636E-05	2.803E-04	8.904E-05	3.236E-05	4.881E-04
1.029E-04	1.361E-04	5.034E-04	3.399E-04	1.112E-03	2.092E-03
1.548E-04	1.997E-04	7.849E-04	6.634E-04	3.325E-03	4.973E-03
2.067E-04	2.546E-04	1.019E-03	9.234E-04	4.978E-03	7.175E-03
3.170E-04	3.751E-04	1.518E-03	1.466E-03	8.243E-03	1.160E-02
5.019E-04	5.666E-04	2.264E-03	2.231E-03	-7.744E-04	4.288E-03
7.355E-04	7.421E-04	2.853E-03	2.758E-03	1.449E-02	2.085E-02
1.064E-03	9.353E-04	3.398E-03	3.176E-03	1.574E-02	2.325E-02
1.524E-03	1.129E-03	3.813E-03	3.416E-03	1.618E-02	2.454E-02
2.049E-03	1.342E-03	4.198E-03	3.602E-03	1.644E-02	2.558E-02
3.002E-03	1.701E-03	4.726E-03	3.813E-03	1.665E-02	2.689E-02
5.021E-03	2.302E-03	5.246E-03	3.922E-03	1.672E-02	2.819E-02
7.164E-03	2.946E-03	5.518E-03	3.936E-03	1.672E-02	2.912E-02
1.005E-02	4.085E-03	5.832E-03	3.933E-03	1.673E-02	3.058E-02
1.514E-02	7.729E-03	7.054E-03	3.937E-03	1.672E-02	3.544E-02
2.022E-02	1.401E-02	1.037E-02	3.940E-03	1.672E-02	4.504E-02
3.023E-02	3.403E-02	2.785E-02	3.980E-03	1.673E-02	8.259E-02
5.035E-02	8.894E-02	1.041E-01	5.560E-03	1.671E-02	2.153E-01
7.024E-02	1.535E-01	2.118E-01	1.200E-02	1.666E-02	3.940E-01
1.011E-01	2.523E-01	3.755E-01	2.950E-02	1.672E-02	6.740E-01
1.505E-01	3.389E-01	4.774E-01	5.630E-02	1.677E-02	8.894E-01
2.010E-01	3.807E-01	5.168E-01	7.940E-02	1.671E-02	9.936E-01
3.003E-01	4.274E-01	5.625E-01	1.141E-01	1.650E-02	1.120E+00
5.015E-01	4.792E-01	6.168E-01	1.590E-01	1.710E-02	1.272E+00
5.823E-01	4.933E-01	6.324E-01	1.723E-01	1.650E-02	1.315E+00
7.010E-01	5.112E-01	6.528E-01	1.890E-01	1.630E-02	1.369E+00
8.020E-01	5.240E-01	6.684E-01	2.016E-01	1.590E-02	1.410E+00
1.101E+00	5.469E-01	6.962E-01	2.219E-01	1.700E-02	1.482E+00

PLTPOW



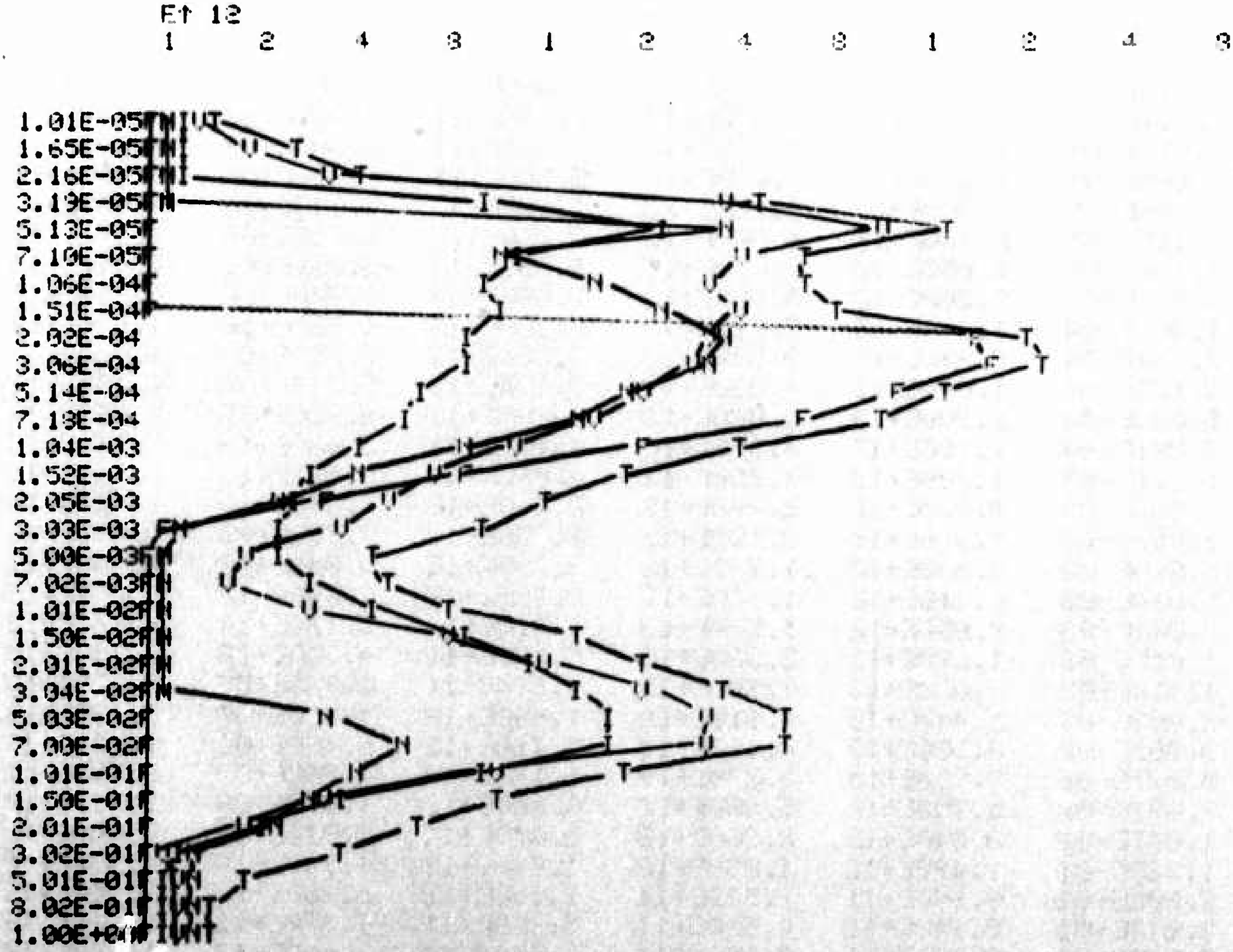
POWER(WATTS) VERSUS TIME(SECONDS)

CASE 5 / 9

TIME	IRP	VISP	NRUV	FRUV	TOTP
1.008E-05	3.320E+11	6.800E+11	2.430E+10	3.870E+05	1.040E+12
1.649E-05	6.170E+11	1.770E+12	2.430E+10	3.870E+05	2.410E+12
2.161E-05	8.470E+11	2.720E+12	2.440E+10	3.870E+05	3.590E+12
3.186E-05	7.690E+12	3.540E+13	3.490E+10	3.880E+05	4.310E+13
5.134E-05	2.340E+13	9.030E+13	3.320E+13	3.890E+05	1.470E+14
7.095E-05	9.830E+12	3.800E+13	8.570E+12	3.930E+05	5.640E+13
1.055E-04	7.990E+12	3.310E+13	1.620E+13	4.010E+05	5.730E+13
1.505E-04	8.730E+12	3.710E+13	2.360E+13	1.010E+08	6.940E+13
2.024E-04	7.030E+12	3.000E+13	3.360E+13	1.680E+14	2.380E+14
3.062E-04	6.810E+12	2.830E+13	3.080E+13	1.950E+14	2.610E+14
5.138E-04	5.390E+12	2.020E+13	1.990E+13	1.020E+14	1.480E+14
7.182E-04	4.570E+12	1.530E+13	1.370E+13	5.710E+13	9.080E+13
1.039E-03	3.440E+12	9.530E+12	7.060E+12	2.020E+13	4.030E+13
1.521E-03	2.660E+12	5.820E+12	3.450E+12	6.880E+12	1.880E+13
2.046E-03	2.370E+12	4.260E+12	2.050E+12	2.900E+12	1.160E+13
3.032E-03	2.220E+12	3.200E+12	1.090E+12	1.060E+12	7.580E+12
5.002E-03	2.030E+12	1.650E+12	2.330E+11	1.140E+11	4.020E+12
7.022E-03	2.510E+12	1.590E+12	4.930E+10	1.460E+10	4.170E+12
1.013E-02	3.840E+12	2.570E+12	5.720E+09	6.320E+08	6.410E+12
1.500E-02	7.160E+12	6.500E+12	2.860E+09	7.320E+06	1.370E+13
2.015E-02	1.010E+13	1.130E+13	1.960E+10	4.270E+05	2.150E+13
3.039E-02	1.410E+13	2.120E+13	4.090E+11	2.720E+05	3.570E+13
5.034E-02	1.800E+13	3.260E+13	2.920E+12	2.390E+06	5.350E+13
7.004E-02	1.750E+13	3.130E+13	4.670E+12	7.270E+06	5.350E+13
1.014E-01	7.800E+12	8.310E+12	3.660E+12	2.210E+07	1.980E+13
1.502E-01	3.220E+12	2.970E+12	2.610E+12	6.150E+07	8.800E+12
2.007E-01	1.840E+12	1.720E+12	1.850E+12	1.350E+08	5.420E+12
3.017E-01	1.040E+12	9.990E+11	1.110E+12	8.840E+08	3.150E+12
5.012E-01	5.740E+11	5.790E+11	6.310E+11	3.690E+09	1.790E+12
8.017E-01	3.750E+11	4.080E+11	4.350E+11	6.060E+09	1.220E+12
1.001E+00	3.240E+11	3.730E+11	4.010E+11	4.830E+09	1.100E+12

TIME	INTI	INTV	INTN	INTF	INTT
1.008E-05	7.200E-07	1.476E-06	5.300E-08	-2.001E-11	2.249E-06
1.649E-05	1.315E-06	2.989E-06	1.260E-07	-3.576E-08	4.394E-06
2.161E-05	2.266E-06	5.806E-06	1.200E-07	1.000E-10	8.192E-06
3.186E-05	2.698E-05	1.153E-04	2.200E-07	-2.760E-08	1.425E-04
5.134E-05	5.347E-05	2.430E-04	2.793E-05	-5.000E-08	3.243E-04
7.095E-05	8.404E-05	3.579E-04	5.636E-05	-1.000E-08	4.983E-04
1.055E-04	1.721E-04	7.241E-04	1.638E-04	5.000E-07	1.060E-03
1.505E-04	2.687E-04	1.136E-03	4.913E-04	1.000E-07	1.896E-03
2.024E-04	3.658E-04	1.555E-03	9.232E-04	2.307E-03	5.151E-03
3.062E-04	5.369E-04	2.277E-03	1.717E-03	7.209E-03	1.174E-02
5.138E-04	8.265E-04	3.411E-03	2.887E-03	1.384E-02	2.097E-02
7.182E-04	1.050E-03	4.184E-03	3.600E-03	1.703E-02	2.586E-02
1.039E-03	1.353E-03	5.112E-03	4.365E-03	1.977E-02	3.060E-02
1.521E-03	1.690E-03	5.931E-03	4.899E-03	2.107E-02	3.359E-02
2.046E-03	1.996E-03	6.524E-03	5.210E-03	2.157E-02	3.530E-02
3.032E-03	2.535E-03	7.381E-03	5.564E-03	2.200E-02	3.748E-02
5.002E-03	3.554E-03	8.544E-03	5.872E-03	2.224E-02	4.021E-02
7.022E-03	4.647E-03	9.317E-03	5.926E-03	2.225E-02	4.214E-02
1.013E-02	7.005E-03	1.086E-02	5.925E-03	2.228E-02	4.607E-02
1.500E-02	1.353E-02	1.608E-02	5.940E-03	2.226E-02	5.781E-02
2.015E-02	2.437E-02	2.694E-02	5.940E-03	2.227E-02	7.952E-02
3.039E-02	5.463E-02	6.794E-02	6.330E-03	2.229E-02	1.512E-01
5.034E-02	1.332E-01	2.023E-01	1.400E-02	2.229E-02	3.718E-01
7.004E-02	2.183E-01	3.572E-01	3.320E-02	2.218E-02	6.309E-01
1.014E-01	3.156E-01	5.010E-01	6.540E-02	2.223E-02	9.042E-01
1.502E-01	3.711E-01	5.546E-01	1.013E-01	2.190E-02	1.049E+00
2.007E-01	3.998E-01	5.812E-01	1.270E-01	2.270E-02	1.131E+00
3.017E-01	4.326E-01	6.122E-01	1.612E-01	2.270E-02	1.229E+00
5.012E-01	4.685E-01	6.476E-01	2.009E-01	2.240E-02	1.339E+00
8.017E-01	5.011E-01	6.816E-01	2.373E-01	2.270E-02	1.443E+00
1.001E+00	5.177E-01	7.002E-01	2.571E-01	2.300E-02	1.498E+00

PLTPOW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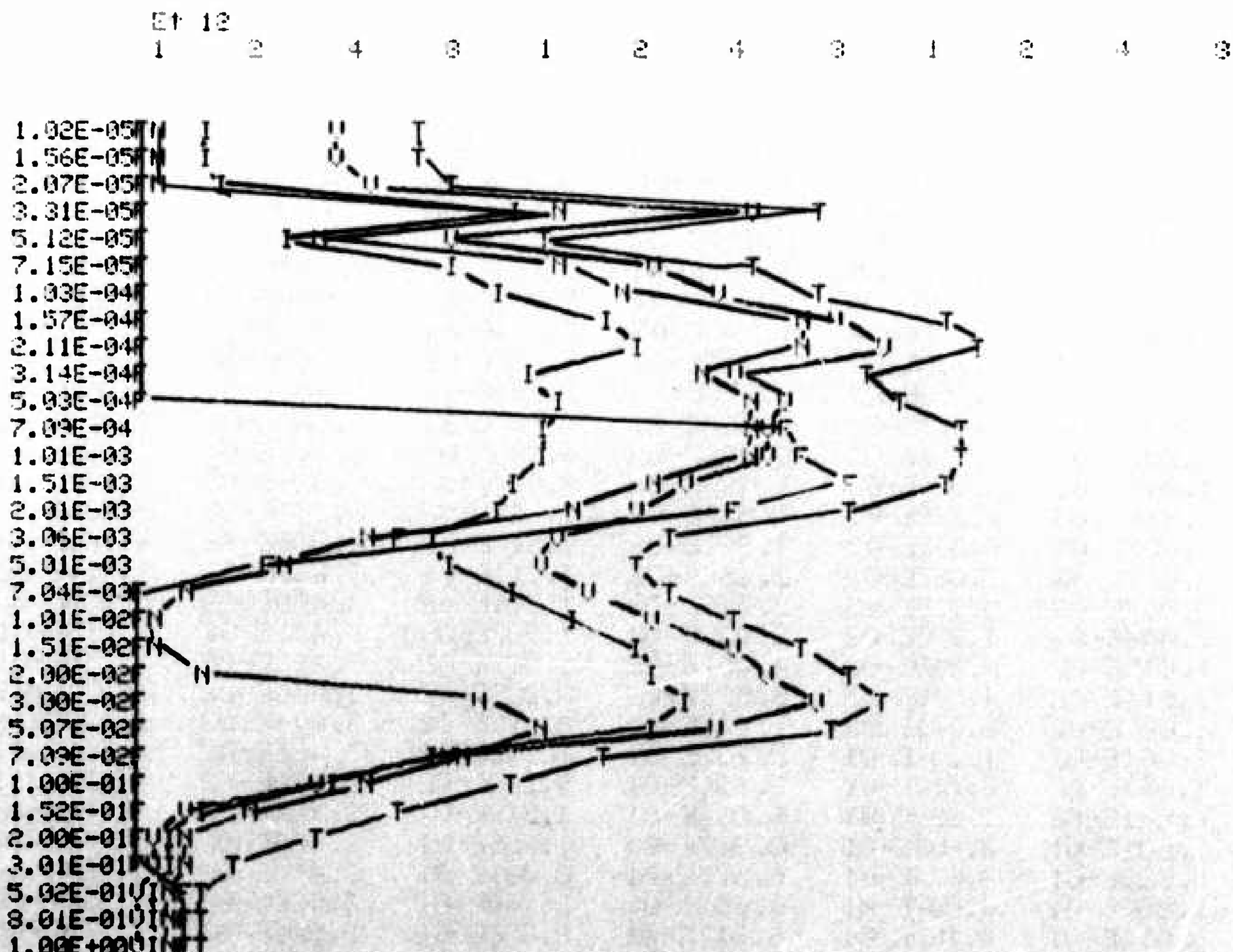
1.01E-01
1.50E-01
2.01E-01
3.02E-01
5.01E-01
8.02E-01
1.00E+00

CASE 5 / 19

TIME	IRP	VISP	NRUV	FRUV	TOTP
1.021E-05	1.370E+12	3.070E+12	7.020E+11	6.840E+06	5.140E+12
1.557E-05	1.380E+12	3.110E+12	7.130E+11	6.840E+06	5.200E+12
2.069E-05	1.540E+12	3.690E+12	8.560E+11	6.840E+06	6.090E+12
3.308E-05	9.800E+12	4.100E+13	1.280E+13	6.840E+06	6.360E+13
5.115E-05	2.430E+12	6.500E+12	2.780E+12	6.850E+06	1.170E+13
7.152E-05	6.650E+12	2.430E+13	1.320E+13	6.860E+06	4.410E+13
1.032E-04	9.000E+12	3.500E+13	1.880E+13	6.870E+06	6.280E+13
1.569E-04	1.690E+13	7.070E+13	5.560E+13	6.920E+06	1.430E+14
2.114E-04	2.200E+13	9.590E+13	5.800E+13	7.030E+06	1.760E+14
3.135E-04	1.040E+13	4.020E+13	3.130E+13	7.210E+06	8.190E+13
5.033E-04	1.300E+13	5.020E+13	4.290E+13	2.950E+07	1.060E+14
7.091E-04	1.180E+13	4.350E+13	4.190E+13	5.430E+13	1.510E+14
1.011E-03	1.200E+13	4.280E+13	4.060E+13	5.530E+13	1.510E+14
1.508E-03	9.860E+12	2.940E+13	2.340E+13	7.890E+13	1.420E+14
2.007E-03	8.380E+12	2.130E+13	1.450E+13	3.670E+13	8.090E+13
3.065E-03	6.030E+12	1.240E+13	3.780E+12	4.840E+12	2.700E+13
5.014E-03	6.510E+12	1.120E+13	2.320E+12	2.090E+12	2.210E+13
7.044E-03	9.050E+12	1.570E+13	1.310E+12	3.130E+11	2.640E+13
1.015E-02	1.370E+13	2.320E+13	5.490E+11	4.950E+10	3.750E+13
1.514E-02	2.030E+13	3.800E+13	4.280E+11	1.930E+09	5.870E+13
2.003E-02	2.440E+13	4.910E+13	1.450E+12	1.550E+08	7.490E+13
3.001E-02	2.980E+13	6.110E+13	8.110E+12	6.450E+06	9.910E+13
5.071E-02	2.250E+13	3.370E+13	1.170E+13	1.760E+07	6.790E+13
7.091E-02	5.750E+12	5.880E+12	6.260E+12	1.470E+08	1.790E+13
1.001E-01	3.040E+12	2.860E+12	3.890E+12	2.910E+09	9.800E+12
1.523E-01	1.490E+12	1.250E+12	1.840E+12	1.940E+10	4.590E+12
2.002E-01	9.640E+11	7.530E+11	1.100E+12	6.200E+10	2.880E+12
3.013E-01	5.940E+11	4.220E+11	5.980E+11	1.870E+11	1.800E+12
5.020E-01	3.070E+11	2.250E+11	3.450E+11	3.640E+11	1.240E+12
8.012E-01	1.760E+11	1.360E+11	2.210E+11	3.740E+11	9.080E+11
1.002E+00	1.390E+11	1.130E+11	1.890E+11	3.470E+11	7.890E+11

TIME	INTI	INTV	INTN	INTF	INTT
1.021E-05	3.006E-06	6.758E-06	1.546E-06	5.000E-09	1.131E-05
1.557E-05	4.761E-06	1.071E-05	2.459E-06	-4.000E-09	1.793E-05
2.069E-05	6.552E-06	1.489E-05	3.428E-06	-9.000E-09	2.486E-05
3.308E-05	2.563E-05	9.026E-05	2.621E-05	.000E+00	1.421E-04
5.115E-05	5.393E-05	2.117E-04	5.897E-05	-7.000E-08	3.245E-04
7.152E-05	7.881E-05	2.978E-04	1.119E-04	9.997E-09	4.885E-04
1.032E-04	1.397E-04	5.291E-04	2.372E-04	.000E+00	9.060E-04
1.569E-04	3.127E-04	1.243E-03	7.033E-04	1.000E-07	2.259E-03
2.114E-04	5.780E-04	2.383E-03	1.482E-03	.000E+00	4.443E-03
3.135E-04	8.953E-04	3.775E-03	2.199E-03	3.000E-07	6.869E-03
5.033E-04	1.473E-03	6.050E-03	4.067E-03	4.000E-06	1.159E-02
7.091E-04	2.097E-03	8.420E-03	6.163E-03	6.200E-04	1.730E-02
1.011E-03	2.956E-03	1.149E-02	8.934E-03	5.336E-03	2.872E-02
1.508E-03	4.273E-03	1.588E-02	1.288E-02	2.201E-02	5.504E-02
2.007E-03	5.372E-03	1.892E-02	1.512E-02	2.867E-02	6.808E-02
3.065E-03	7.085E-03	2.266E-02	1.711E-02	3.266E-02	7.951E-02
5.014E-03	9.955E-03	2.781E-02	1.848E-02	3.409E-02	9.034E-02
7.044E-03	1.375E-02	3.438E-02	1.927E-02	3.452E-02	1.019E-01
1.015E-02	2.243E-02	4.857E-02	1.989E-02	3.463E-02	1.255E-01
1.514E-02	4.310E-02	8.532E-02	2.038E-02	3.463E-02	1.834E-01
2.003E-02	6.941E-02	1.367E-01	2.119E-02	3.474E-02	2.620E-01
3.001E-02	1.347E-01	2.708E-01	3.190E-02	3.466E-02	4.721E-01
5.071E-02	2.787E-01	5.430E-01	9.140E-02	3.470E-02	9.478E-01
7.091E-02	3.328E-01	6.063E-01	1.319E-01	3.480E-02	1.106E+00
1.001E-01	3.608E-01	6.337E-01	1.655E-01	3.480E-02	1.195E+00
1.523E-01	3.874E-01	6.575E-01	2.001E-01	3.470E-02	1.280E+00
2.002E-01	4.007E-01	6.683E-01	2.160E-01	3.500E-02	1.320E+00
3.013E-01	4.167E-01	6.817E-01	2.356E-01	3.800E-02	1.374E+00
5.020E-01	4.385E-01	6.958E-01	2.557E-01	5.190E-02	1.442E+00
8.012E-01	4.548E-01	7.031E-01	2.751E-01	7.930E-02	1.517E+00
1.002E+00	4.622E-01	7.139E-01	2.849E-01	9.660E-02	1.558E+00

PLTPON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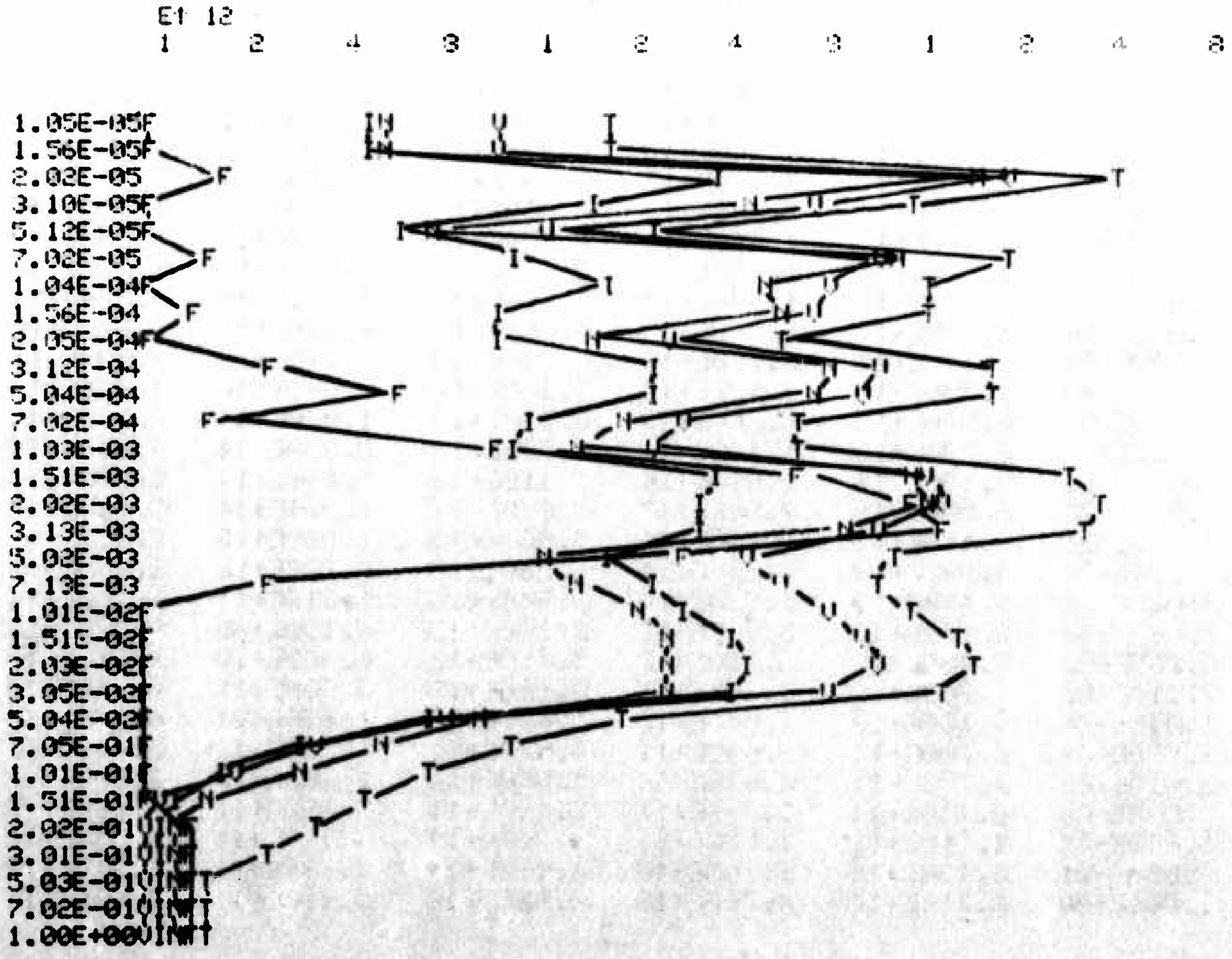
8.01E-01
1.00E+00

CASE 5 / 27

TIME	IRP	VISP	NRUV	FRUV	TOTP
1.047E-05	3.770E+12	8.700E+12	4.030E+12	3.140E+10	1.650E+13
1.560E-05	3.790E+12	8.780E+12	4.070E+12	6.480E+10	1.670E+13
2.021E-05	3.400E+13	2.040E+14	1.650E+14	1.560E+12	4.050E+14
3.097E-05	1.500E+13	6.070E+13	4.400E+13	3.850E+11	1.200E+14
5.115E-05	4.760E+12	1.120E+13	5.790E+12	4.300E+11	2.220E+13
7.018E-05	9.370E+12	9.810E+13	1.080E+14	1.470E+12	2.170E+14
1.036E-04	1.780E+13	6.720E+13	4.890E+13	5.730E+11	1.340E+14
1.556E-04	8.600E+12	6.130E+13	5.050E+13	1.310E+12	1.220E+14
2.045E-04	8.950E+12	2.550E+13	1.640E+13	1.950E+11	5.100E+13
3.120E-04	2.400E+13	9.210E+13	7.110E+13	2.100E+12	1.890E+14
5.041E-04	2.380E+13	8.800E+13	6.520E+13	4.680E+12	1.820E+14
7.020E-04	1.090E+13	2.910E+13	1.830E+13	1.400E+12	5.970E+13
1.031E-03	9.940E+12	2.360E+13	1.360E+13	8.920E+12	5.600E+13
1.512E-03	3.420E+13	1.250E+14	1.100E+14	5.740E+13	3.260E+14
2.024E-03	3.050E+13	1.310E+14	1.220E+14	1.130E+14	3.970E+14
3.126E-03	3.090E+13	9.580E+13	7.540E+13	1.410E+14	3.430E+14
5.022E-03	1.680E+13	4.390E+13	1.150E+13	2.740E+13	9.950E+13
7.128E-03	2.320E+13	5.270E+13	1.430E+13	2.130E+12	9.230E+13
1.013E-02	2.920E+13	6.910E+13	2.170E+13	7.320E+11	1.210E+14
1.514E-02	3.690E+13	8.770E+13	2.710E+13	3.200E+10	1.520E+14
2.030E-02	4.230E+13	9.590E+13	2.700E+13	2.770E+09	1.650E+14
3.052E-02	3.950E+13	7.310E+13	2.670E+13	2.000E+08	1.390E+14
5.035E-02	5.880E+12	6.240E+12	7.750E+12	3.740E+09	1.990E+13
7.055E-02	2.670E+12	2.780E+12	4.080E+12	7.060E+12	9.610E+12
1.010E-01	1.610E+12	1.640E+12	2.480E+12	2.880E+11	6.020E+12
1.515E-01	9.530E+11	9.120E+11	1.360E+12	6.360E+11	3.860E+12
2.020E-01	6.440E+11	5.760E+11	8.310E+11	8.930E+11	2.940E+12
3.005E-01	3.910E+11	3.230E+11	4.680E+11	9.740E+11	2.160E+12
5.031E-01	2.060E+11	1.680E+11	2.580E+11	7.330E+11	1.360E+12
7.020E-01	1.320E+11	1.120E+11	1.860E+11	5.930E+11	1.020E+12
1.003E+00	8.450E+10	7.390E+10	1.280E+11	4.440E+11	7.300E+11

TIME	INTI	INTV	INTN	INTF	INTT
1.047E-05	8.527E-06	1.968E-05	9.123E-06	4.900E-08	3.738E-05
1.560E-05	1.316E-05	3.038E-05	1.409E-05	1.100E-07	5.774E-05
2.021E-05	2.162E-05	6.621E-05	3.967E-05	3.800E-07	1.279E-04
3.097E-05	5.432E-05	1.914E-04	1.265E-04	1.120E-06	3.733E-04
5.115E-05	1.039E-04	4.521E-04	3.321E-04	4.000E-06	8.921E-04
7.018E-05	1.367E-04	6.122E-04	4.751E-04	6.000E-06	1.230E-03
1.036E-04	2.640E-04	1.079E-03	8.150E-04	8.900E-06	2.167E-03
1.556E-04	4.604E-04	1.973E-03	1.503E-03	2.240E-05	3.958E-03
2.045E-04	5.455E-04	2.197E-03	1.682E-03	2.850E-05	4.452E-03
3.120E-04	1.033E-03	3.971E-03	3.053E-03	6.400E-05	8.121E-03
5.041E-04	1.723E-03	6.686E-03	5.211E-03	1.990E-04	1.382E-02
7.020E-04	2.369E-03	9.135E-03	7.056E-03	4.600E-04	1.902E-02
1.031E-03	3.450E-03	1.343E-02	1.043E-02	1.310E-03	2.862E-02
1.512E-03	6.166E-03	2.361E-02	1.878E-02	4.616E-03	5.318E-02
2.024E-03	1.030E-02	3.975E-02	3.265E-02	1.304E-02	9.574E-02
3.126E-03	1.863E-02	7.176E-02	6.221E-02	5.799E-02	2.106E-01
5.022E-03	2.978E-02	1.028E-01	8.072E-02	1.083E-01	3.216E-01
7.128E-03	4.065E-02	1.292E-01	8.815E-02	1.110E-01	3.690E-01
1.013E-02	5.989E-02	1.745E-01	1.008E-01	1.120E-01	4.472E-01
1.514E-02	1.001E-01	2.695E-01	1.321E-01	1.123E-01	6.140E-01
2.030E-02	1.496E-01	3.843E-01	1.660E-01	1.123E-01	8.122E-01
3.052E-02	2.526E-01	6.009E-01	2.355E-01	1.123E-01	1.201E+00
5.035E-02	3.407E-01	7.181E-01	3.042E-01	1.074E-01	1.470E+00
7.055E-02	3.581E-01	7.366E-01	3.303E-01	1.123E-01	1.537E+00
1.010E-01	3.733E-01	7.523E-01	3.534E-01	1.136E-01	1.593E+00
1.515E-01	3.880E-01	7.668E-01	3.752E-01	1.193E-01	1.649E+00
2.020E-01	3.974E-01	7.755E-01	3.881E-01	1.285E-01	1.690E+00
3.005E-01	4.088E-01	7.853E-01	4.019E-01	1.519E-01	1.748E+00
5.031E-01	4.227E-01	7.965E-01	4.188E-01	1.922E-01	1.830E+00
7.020E-01	4.305E-01	8.029E-01	4.286E-01	2.239E-01	1.886E+00
1.003E+00	4.380E-01	8.094E-01	4.396E-01	2.607E-01	1.948E+00

PLTPOW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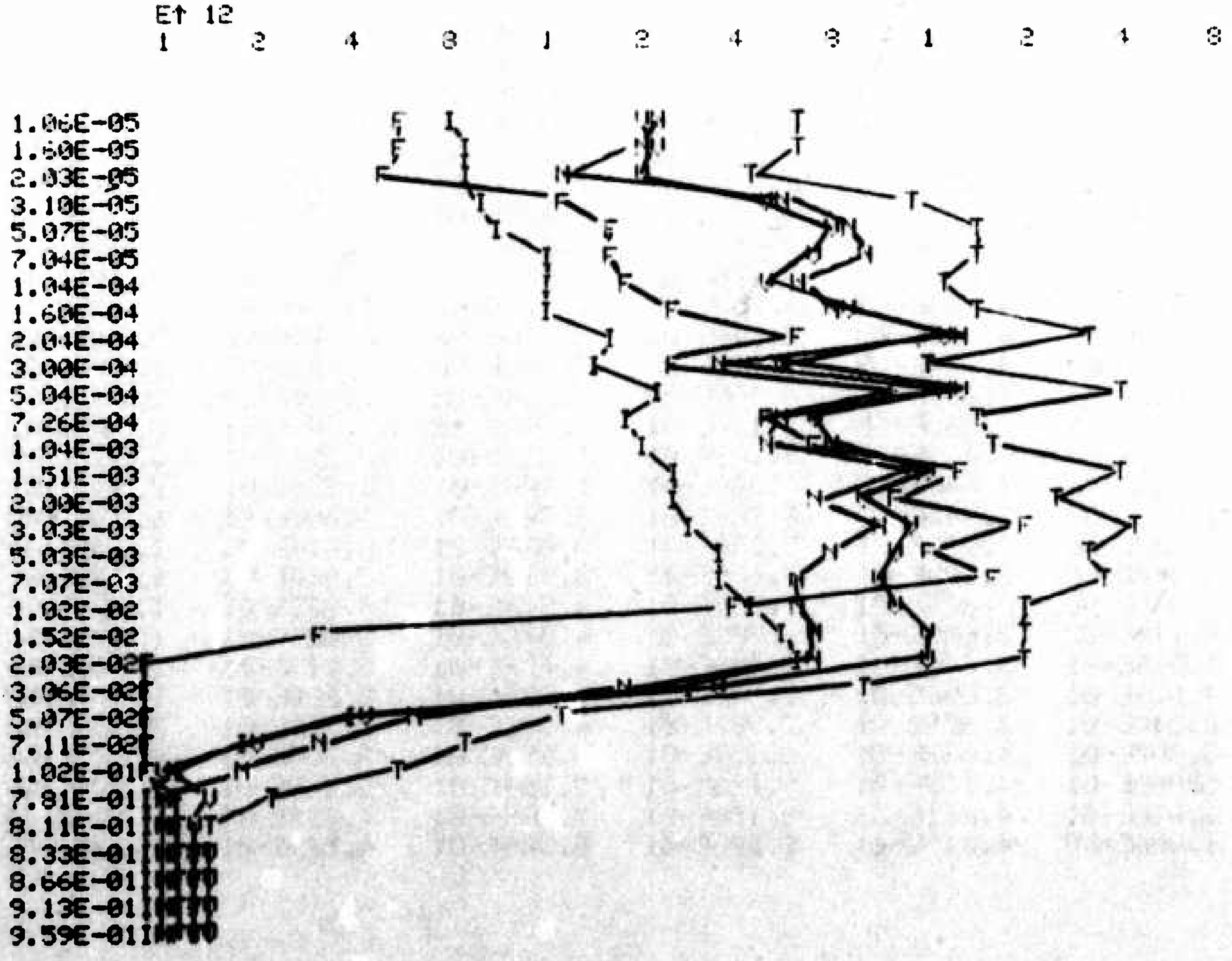
3.01E-01
5.03E-01
7.02E-01
1.00E+00

CASE 5 / 31

TIME	IRP	VISP	NRUV	FRUV	TOTP
1.062E-05	6.600E+12	2.050E+13	2.350E+13	4.500E+12	5.510E+13
1.603E-05	6.770E+12	2.290E+13	2.210E+13	4.800E+12	5.650E+13
2.030E-05	7.060E+12	2.040E+13	1.280E+13	4.380E+12	4.470E+13
3.105E-05	7.540E+12	4.560E+13	5.070E+13	1.240E+13	1.160E+14
5.065E-05	8.740E+12	6.810E+13	7.060E+13	1.750E+13	1.650E+14
7.037E-05	1.210E+13	6.340E+13	8.300E+13	1.710E+13	1.760E+14
1.043E-04	1.160E+13	4.700E+13	5.930E+13	1.920E+13	1.370E+14
1.605E-04	1.200E+13	7.140E+13	6.880E+13	2.650E+13	1.790E+14
2.037E-04	1.800E+13	1.390E+14	1.470E+14	5.590E+13	3.590E+14
3.000E-04	1.560E+13	5.100E+13	3.570E+13	2.670E+13	1.290E+14
5.042E-04	2.440E+13	1.440E+14	1.390E+14	1.010E+14	4.090E+14
7.258E-04	1.940E+13	6.400E+13	4.550E+13	4.500E+13	1.740E+14
1.039E-03	2.130E+13	6.780E+13	4.700E+13	6.270E+13	1.990E+14
1.508E-03	2.590E+13	1.200E+14	1.100E+14	1.640E+14	4.200E+14
2.003E-03	2.570E+13	8.800E+13	6.290E+13	1.020E+14	2.790E+14
3.028E-03	2.730E+13	1.130E+14	9.590E+13	2.330E+14	4.690E+14
5.029E-03	3.590E+13	1.030E+14	7.110E+13	1.290E+14	3.390E+14
7.074E-03	3.580E+13	9.330E+13	5.850E+13	1.950E+14	3.830E+14
1.018E-02	4.150E+13	1.050E+14	5.560E+13	3.900E+13	2.410E+14
1.523E-02	5.080E+13	1.250E+14	6.210E+13	2.720E+12	2.400E+14
2.028E-02	5.490E+13	1.230E+14	5.540E+13	1.310E+11	2.340E+14
3.062E-02	2.970E+13	3.400E+13	2.000E+13	6.190E+09	8.370E+13
5.065E-02	3.480E+12	3.630E+12	5.410E+12	6.460E+10	1.260E+13
7.110E-02	1.780E+12	1.790E+12	2.920E+12	3.530E+11	6.840E+12
1.018E-01	1.100E+12	1.040E+12	1.690E+12	8.690E+11	4.700E+12
1.536E-01	6.700E+11	5.640E+11	8.820E+11	1.350E+12	3.460E+12
2.010E-01	4.750E+11	3.650E+11	5.560E+11	1.200E+12	2.590E+12
3.002E-01	2.710E+11	1.990E+11	3.130E+11	9.050E+11	1.690E+12
5.009E-01	1.510E+11	1.070E+11	1.760E+11	6.170E+11	1.050E+12
8.050E-01	8.190E+10	6.130E+10	1.090E+11	4.290E+11	6.810E+11
1.006E+00	6.210E+10	4.760E+10	8.820E+10	3.620E+11	5.600E+11

TIME	INTI	INTV	INTN	INTF	INTT
1.062E-05	1.037E-05	3.308E-05	2.995E-05	5.360E-06	7.876E-05
1.603E-05	1.904E-05	6.157E-05	5.729E-05	1.122E-05	1.491E-04
2.030E-05	2.609E-05	8.119E-05	7.982E-05	1.646E-05	2.036E-04
3.105E-05	4.504E-05	2.001E-04	2.078E-04	4.494E-05	4.978E-04
5.065E-05	8.849E-05	4.625E-04	4.870E-04	1.072E-04	1.145E-03
7.037E-05	1.381E-04	7.273E-04	8.016E-04	1.809E-04	1.848E-03
1.043E-04	2.270E-04	1.242E-03	1.365E-03	3.360E-04	3.170E-03
1.605E-04	3.984E-04	2.215E-03	2.392E-03	6.734E-04	5.678E-03
2.037E-04	5.473E-04	2.946E-03	3.157E-03	1.005E-03	7.655E-03
3.000E-04	8.791E-04	4.337E-03	4.662E-03	1.771E-03	1.165E-02
5.042E-04	1.710E-03	7.956E-03	8.234E-03	4.136E-03	2.204E-02
7.258E-04	2.697E-03	1.170E-02	1.180E-02	7.287E-03	3.349E-02
1.039E-03	4.240E-03	1.758E-02	1.719E-02	1.314E-02	5.215E-02
1.508E-03	6.863E-03	2.746E-02	2.596E-02	2.500E-02	8.528E-02
2.003E-03	9.854E-03	3.777E-02	3.472E-02	3.973E-02	1.221E-01
3.028E-03	1.667E-02	6.109E-02	5.324E-02	7.636E-02	2.074E-01
5.029E-03	3.220E-02	1.100E-01	8.940E-02	1.603E-01	3.919E-01
7.074E-03	5.033E-02	1.583E-01	1.205E-01	2.296E-01	5.567E-01
1.018E-02	7.840E-02	2.300E-01	1.604E-01	2.896E-01	7.584E-01
1.523E-02	1.345E-01	3.704E-01	2.305E-01	3.007E-01	1.036E+00
2.028E-02	1.992E-01	5.236E-01	3.022E-01	3.014E-01	1.326E+00
3.062E-02	3.105E-01	7.155E-01	3.930E-01	3.014E-01	1.720E+00
5.065E-02	3.572E-01	7.634E-01	4.384E-01	3.022E-01	1.861E+00
7.110E-02	3.689E-01	7.753E-01	4.578E-01	3.027E-01	1.905E+00
1.018E-01	3.788E-01	7.849E-01	4.733E-01	3.075E-01	1.944E+00
1.536E-01	3.892E-01	7.943E-01	4.885E-01	3.222E-01	1.994E+00
2.010E-01	3.955E-01	7.993E-01	4.962E-01	3.368E-01	2.028E+00
3.002E-01	4.037E-01	8.054E-01	5.059E-01	3.604E-01	2.075E+00
5.009E-01	4.133E-01	8.123E-01	5.164E-01	3.968E-01	2.139E+00
8.050E-01	4.211E-01	8.180E-01	5.269E-01	4.325E-01	2.199E+00
1.006E+00	4.245E-01	8.206E-01	5.309E-01	4.521E-01	2.228E+00

PLTPOH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9.59E-01

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TIME	IRP	VISP	MRUV	FRUV	TOTP
1.021E-05	1.150E+13	3.340E+13	2.250E+13	3.240E+13	9.980E+13
1.634E-05	1.530E+13	8.580E+13	1.020E+14	5.030E+13	2.620E+14
2.061E-05	1.480E+13	8.510E+13	7.810E+13	7.020E+13	2.480E+14
3.037E-05	1.320E+13	7.230E+13	1.190E+14	8.540E+13	2.900E+14
5.078E-05	2.590E+13	1.370E+14	1.300E+14	1.100E+14	4.020E+14
7.027E-05	1.530E+13	1.200E+14	1.350E+14	1.260E+14	3.960E+14
1.004E-04	2.640E+13	2.050E+14	2.320E+14	2.120E+14	6.760E+14
1.554E-04	1.750E+13	1.240E+14	1.210E+14	1.500E+14	4.110E+14
2.008E-04	2.200E+13	8.980E+13	1.120E+14	1.680E+14	3.920E+14
3.076E-04	2.520E+13	1.250E+14	1.400E+14	2.050E+14	4.950E+14
5.235E-04	3.090E+13	1.000E+14	7.350E+13	1.460E+14	3.510E+14
7.006E-04	2.730E+13	1.370E+14	1.340E+14	2.680E+14	5.670E+14
1.099E-03	3.570E+13	1.200E+14	8.820E+13	1.820E+14	4.260E+14
1.525E-03	3.790E+13	1.170E+14	1.160E+14	3.160E+14	5.870E+14
2.040E-03	4.400E+13	1.350E+14	9.810E+13	2.570E+14	5.300E+14
3.108E-03	4.450E+13	1.270E+14	1.030E+14	2.630E+14	5.380E+14
5.003E-03	4.690E+13	1.320E+14	9.110E+13	1.580E+14	4.280E+14
7.189E-03	4.760E+13	1.260E+14	8.070E+13	1.430E+14	3.970E+14
1.026E-02	5.100E+13	1.300E+14	7.830E+13	1.580E+14	4.170E+14
1.500E-02	5.700E+13	1.360E+14	7.200E+13	5.060E+13	3.160E+14
2.031E-02	5.830E+13	1.080E+14	5.420E+13	5.120E+12	2.250E+14
3.011E-02	1.770E+13	1.630E+13	1.390E+13	2.330E+11	4.820E+13
5.057E-02	2.440E+12	2.500E+12	3.910E+12	2.940E+11	9.150E+12
7.166E-02	1.270E+12	1.260E+12	2.100E+12	7.370E+11	5.370E+12
1.008E-01	8.220E+11	7.580E+11	1.250E+12	1.530E+12	4.370E+12
1.507E-01	5.130E+11	4.200E+11	6.660E+11	1.280E+12	2.880E+12
2.024E-01	3.610E+11	2.640E+11	4.050E+11	1.030E+12	2.060E+12
3.017E-01	2.150E+11	1.480E+11	2.330E+11	7.280E+11	1.320E+12
5.023E-01	1.150E+11	8.130E+10	1.370E+11	4.890E+11	8.230E+11
7.094E-01	7.230E+10	5.190E+10	9.220E+10	3.480E+11	5.640E+11
1.001E+00	4.870E+10	3.600E+10	6.720E+10	2.670E+11	4.190E+11

TIME	INTI	INTV	INTN	INTF	INTT
1.021E-05	2.343E-05	7.547E-05	9.930E-05	8.460E-05	2.828E-04
1.634E-05	4.809E-05	2.422E-04	2.912E-04	1.874E-04	7.689E-04
2.061E-05	6.341E-05	3.240E-04	3.854E-04	2.533E-04	1.026E-03
3.037E-05	9.368E-05	5.724E-04	6.569E-04	4.711E-04	1.794E-03
5.078E-05	2.188E-04	1.184E-03	1.381E-03	9.958E-04	3.780E-03
7.027E-05	3.053E-04	1.809E-03	2.023E-03	1.559E-03	5.696E-03
1.004E-04	4.921E-04	2.719E-03	3.085E-03	2.608E-03	8.904E-03
1.554E-04	8.092E-04	4.503E-03	5.078E-03	4.689E-03	1.508E-02
2.008E-04	1.029E-03	5.679E-03	6.392E-03	6.458E-03	1.956E-02
3.076E-04	1.726E-03	9.080E-03	1.017E-02	1.183E-02	3.281E-02
5.235E-04	3.146E-03	1.422E-02	1.523E-02	2.115E-02	5.375E-02
7.006E-04	4.370E-03	2.065E-02	2.163E-02	3.299E-02	7.964E-02
1.099E-03	7.595E-03	3.126E-02	3.135E-02	5.501E-02	1.252E-01
1.525E-03	1.121E-02	4.603E-02	4.536E-02	8.724E-02	1.898E-01
2.040E-03	1.610E-02	6.101E-02	5.779E-02	1.208E-01	2.557E-01
3.108E-03	2.688E-02	9.693E-02	8.849E-02	1.951E-01	4.074E-01
5.003E-03	4.703E-02	1.589E-01	1.323E-01	3.066E-01	6.448E-01
7.189E-03	7.186E-02	2.253E-01	1.766E-01	3.782E-01	8.520E-01
1.026E-02	1.079E-01	3.190E-01	2.344E-01	4.917E-01	1.153E+00
1.520E-02	1.720E-01	4.759E-01	3.234E-01	6.166E-01	1.588E+00
2.031E-02	2.444E-01	6.307E-01	4.029E-01	6.461E-01	1.924E+00
3.011E-02	3.294E-01	7.367E-01	4.659E-01	6.481E-01	2.180E+00
5.057E-02	3.577E-01	7.639E-01	4.984E-01	6.506E-01	2.271E+00
7.166E-02	3.662E-01	7.725E-01	5.123E-01	6.527E-01	2.304E+00
1.008E-01	3.731E-01	7.791E-01	5.238E-01	6.612E-01	2.337E+00
1.507E-01	3.806E-01	7.856E-01	5.338E-01	6.782E-01	2.378E+00
2.024E-01	3.858E-01	7.896E-01	5.406E-01	6.924E-01	2.408E+00
3.017E-01	3.923E-01	7.942E-01	5.475E-01	7.125E-01	2.447E+00
5.023E-01	3.998E-01	7.994E-01	5.558E-01	7.412E-01	2.496E+00
7.094E-01	4.043E-01	8.025E-01	5.612E-01	7.608E-01	2.529E+00
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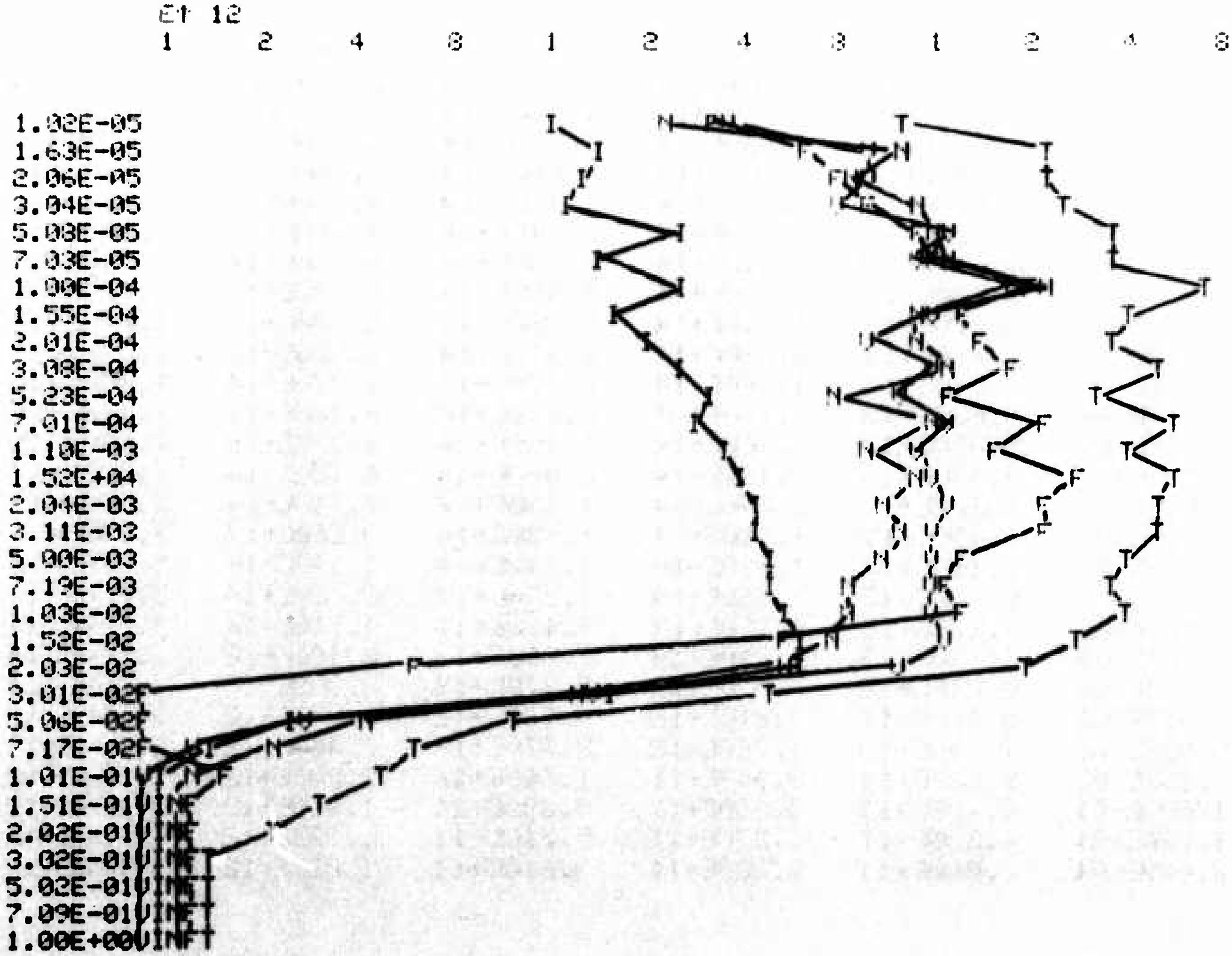

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1.00E+00

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TIME	IRP	VISP	NRUV	FRUV	TOTP
1.016E-05	1.590E+13	1.080E+14	1.540E+14	2.720E+14	1.540E+14
1.555E-05	1.600E+13	1.020E+14	1.430E+14	2.560E+14	5.170E+14
2.016E-05	1.850E+12	1.300E+14	1.810E+14	3.380E+14	6.670E+14
3.007E-05	2.040E+13	1.460E+14	2.000E+14	3.960E+14	7.630E+14
5.067E-05	2.500E+13	1.850E+14	2.460E+14	4.900E+14	9.450E+14
7.071E-05	2.510E+13	1.720E+14	2.240E+14	4.680E+14	8.890E+14
1.033E-04	2.670E+13	1.610E+14	2.180E+14	4.890E+14	8.940E+14
1.520E-04	3.100E+13	1.930E+14	2.490E+14	5.990E+14	1.070E+15
2.004E-04	3.270E+13	1.830E+14	2.360E+14	5.880E+14	1.040E+15
3.042E-04	3.710E+13	2.030E+14	2.410E+14	6.500E+14	1.130E+15
5.187E-04	4.240E+13	1.840E+14	2.170E+14	6.070E+14	1.050E+15
7.217E-04	4.630E+13	2.130E+14	2.260E+14	6.580E+14	1.140E+15
1.019E-03	5.050E+13	1.960E+14	1.980E+14	5.870E+14	1.030E+15
1.525E-03	5.490E+13	2.120E+14	2.000E+14	6.180E+14	1.080E+15
2.058E-03	5.820E+13	2.040E+14	1.830E+14	5.720E+14	1.020E+15
3.018E-03	6.090E+13	1.800E+14	1.350E+14	3.260E+14	7.030E+14
5.145E-03	6.110E+13	1.680E+14	1.130E+14	2.190E+14	5.610E+14
7.015E-03	6.180E+13	1.590E+14	1.030E+14	2.020E+14	5.250E+14
1.023E-02	6.270E+13	1.510E+14	9.130E+13	1.510E+14	4.570E+14
1.502E-02	6.100E+13	1.290E+14	7.080E+13	8.980E+13	3.510E+14
2.074E-02	4.030E+13	4.530E+13	2.870E+13	2.860E+13	1.430E+14
3.017E-02	8.330E+12	7.810E+12	9.570E+12	7.840E+12	3.350E+13
5.037E-02	1.700E+12	1.760E+12	2.870E+12	2.460E+12	8.790E+12
7.057E-02	9.830E+11	9.940E+11	1.660E+12	2.200E+12	5.840E+12
1.009E-01	6.400E+11	5.980E+11	9.830E+11	1.860E+12	4.080E+12
1.526E-01	4.230E+11	3.570E+11	5.710E+11	1.380E+12	2.730E+12
2.019E-01	3.060E+11	2.320E+11	3.610E+11	1.020E+12	1.920E+12

TIME	INTI	INTV	INTN	INTF	INTT
1.016E-05	3.184E-05	1.717E-04	2.658E-04	5.031E-04	9.724E-04
1.555E-05	5.244E-05	3.057E-04	4.572E-04	8.418E-04	1.657E-03
2.016E-05	7.057E-05	4.151E-04	6.183E-04	1.138E-03	2.242E-03
3.007E-05	1.154E-04	7.279E-04	1.060E-03	2.005E-03	3.908E-03
5.067E-05	2.218E-04	1.470E-03	2.085E-03	4.057E-03	7.834E-03
7.071E-05	3.388E-04	2.272E-03	3.150E-03	6.249E-03	1.201E-02
1.033E-04	5.425E-04	3.565E-03	4.876E-03	9.964E-03	1.895E-02
1.520E-04	8.787E-04	5.529E-03	7.462E-03	1.605E-02	2.992E-02
2.004E-04	1.242E-03	7.519E-03	1.003E-02	2.250E-02	4.129E-02
3.042E-04	2.114E-03	1.218E-02	1.580E-02	3.758E-02	6.767E-02
5.187E-04	4.189E-03	2.224E-02	2.764E-02	7.035E-02	1.244E-01
7.217E-04	6.368E-03	3.197E-02	3.829E-02	1.005E-01	1.771E-01
1.019E-03	9.824E-03	4.642E-02	5.316E-02	1.446E-01	2.540E-01
1.525E-03	1.621E-02	7.111E-02	7.728E-02	2.180E-01	3.826E-01
2.058E-03	2.340E-02	9.619E-02	1.006E-01	2.878E-01	5.080E-01
3.018E-03	3.709E-02	1.391E-01	1.364E-01	3.825E-01	6.951E-01
5.145E-03	6.814E-02	2.263E-01	1.971E-01	5.081E-01	9.996E-01
7.015E-03	9.565E-02	2.991E-01	2.448E-01	5.991E-01	1.239E+00
1.023E-02	1.436E-01	4.192E-01	3.197E-01	7.383E-01	1.621E+00
1.502E-02	2.148E-01	5.783E-01	4.109E-01	8.631E-01	2.067E+00
2.074E-02	2.852E-01	6.866E-01	4.712E-01	9.318E-01	2.375E+00
3.017E-02	3.264E-01	7.259E-01	5.057E-01	9.623E-01	2.520E+00
5.037E-02	3.422E-01	7.419E-01	5.299E-01	9.801E-01	2.594E+00
7.057E-02	3.481E-01	7.479E-01	5.390E-01	9.920E-01	2.627E+00
1.009E-01	3.537E-01	7.533E-01	5.490E-01	1.006E+00	2.662E+00
1.526E-01	3.601E-01	7.590E-01	5.579E-01	1.026E+00	2.703E+00
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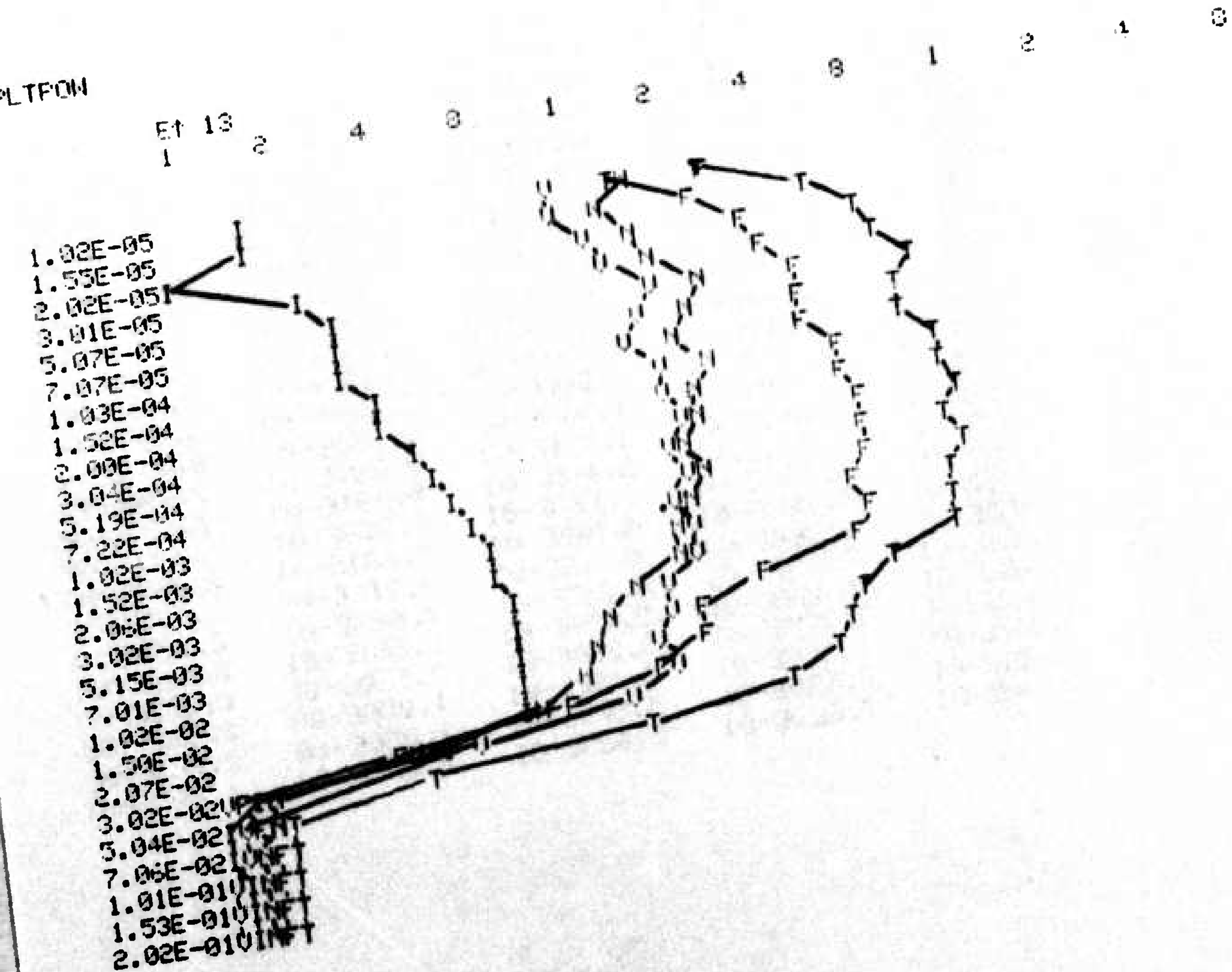
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1.53E-01
2.02E-01

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TIME	IRP	VISP	NRUV	FRUV	TOTP
1.101E-05	4.400E+13	3.000E+14	4.050E+14	1.400E+15	2.230E+15
1.520E-05	4.420E+13	3.180E+14	3.970E+14	1.460E+15	2.240E+15
2.195E-05	4.290E+13	3.140E+14	4.080E+14	1.600E+15	2.360E+15
3.047E-05	6.980E+13	4.420E+14	5.730E+14	2.490E+15	3.580E+15
5.234E-05	5.950E+13	4.460E+14	5.820E+14	2.300E+15	3.390E+15
7.002E-05	7.910E+13	5.010E+14	6.130E+14	2.320E+15	3.520E+15
1.003E-04	7.160E+13	4.660E+14	5.620E+14	2.200E+15	3.300E+15
1.504E-04	8.600E+13	5.130E+14	5.850E+14	2.220E+15	3.400E+15
2.058E-04	7.820E+13	4.730E+14	5.370E+14	2.110E+15	3.200E+15
3.110E-04	7.250E+13	3.950E+14	4.480E+14	1.790E+15	2.700E+15
5.009E-04	8.340E+13	4.070E+14	3.990E+14	1.520E+15	2.410E+15
7.063E-04	8.410E+13	3.630E+14	3.490E+14	1.280E+15	2.080E+15
1.013E-03	8.820E+13	3.280E+14	2.990E+14	1.030E+15	1.750E+15
1.550E-03	9.480E+13	3.040E+14	2.320E+14	6.460E+14	1.280E+15
2.067E-03	9.460E+13	2.330E+14	1.380E+14	2.640E+14	7.300E+14
3.083E-03	9.120E+13	1.990E+14	1.100E+14	1.850E+14	5.850E+14
5.564E-03	8.690E+13	1.980E+14	1.160E+14	2.030E+14	6.040E+14
7.441E-03	8.220E+13	1.690E+14	9.520E+13	1.460E+14	4.920E+14
1.006E-02	7.610E+13	1.520E+14	8.500E+13	1.200E+14	4.320E+14
1.521E-02	5.370E+13	5.670E+13	3.130E+13	3.150E+13	1.730E+14
2.045E-02	2.350E+13	2.010E+13	1.670E+13	1.590E+13	7.620E+13
3.115E-02	5.470E+12	5.160E+12	7.100E+12	7.410E+12	2.510E+13
5.081E-02	1.320E+12	1.440E+12	2.240E+12	3.330E+12	8.330E+12
7.047E-02	7.850E+11	8.800E+11	1.370E+12	1.970E+12	5.000E+12
1.032E-01	4.570E+11	5.280E+11	8.140E+11	1.310E+12	3.110E+12
1.524E-01	3.200E+11	3.590E+11	5.310E+11	8.710E+11	2.080E+12
2.032E-01	2.420E+11	2.680E+11	3.910E+11	6.360E+11	1.540E+12
3.014E-01	1.520E+11	1.670E+11	2.440E+11	3.930E+11	9.550E+11
5.005E-01	7.890E+10	8.780E+10	1.350E+11	2.190E+11	5.200E+11
8.101E-01	4.510E+10	4.970E+10	7.960E+10	1.320E+11	3.070E+11
1.009E+00	3.370E+10	3.650E+10	6.010E+10	1.050E+11	2.350E+11

TIME	INTI	INTV	INTN	INTF	INTT
1.101E-05	8.794E-05	6.150E-04	8.921E-04	3.459E-03	5.054E-03
1.520E-05	1.321E-04	9.359E-04	1.290E-03	4.938E-03	7.296E-03
2.195E-05	2.004E-04	1.444E-03	1.941E-03	7.439E-03	1.102E-02
3.047E-05	3.050E-04	2.166E-03	2.918E-03	1.147E-02	1.686E-02
5.234E-05	6.423E-04	4.534E-03	6.004E-03	2.407E-02	3.525E-02
7.002E-05	9.744E-04	6.661E-03	8.635E-03	3.405E-02	5.032E-02
1.003E-04	1.525E-03	1.015E-02	1.291E-02	5.004E-02	7.463E-02
1.504E-04	2.507E-03	1.619E-02	1.993E-02	7.714E-02	1.158E-01
2.058E-04	3.574E-03	2.258E-02	2.722E-02	1.053E-01	1.587E-01
3.110E-04	5.459E-03	3.344E-02	3.952E-02	1.540E-01	2.324E-01
5.009E-04	9.239E-03	5.260E-02	5.906E-02	2.286E-01	3.495E-01
7.063E-04	1.334E-02	7.110E-02	7.716E-02	2.969E-01	4.585E-01
1.013E-03	1.975E-02	9.579E-02	1.003E-01	3.768E-01	5.926E-01
1.550E-03	3.153E-02	1.360E-01	1.337E-01	4.827E-01	7.839E-01
2.067E-03	4.326E-02	1.681E-01	1.548E-01	5.304E-01	8.966E-01
3.083E-03	6.581E-02	2.181E-01	1.824E-01	5.773E-01	1.044E+00
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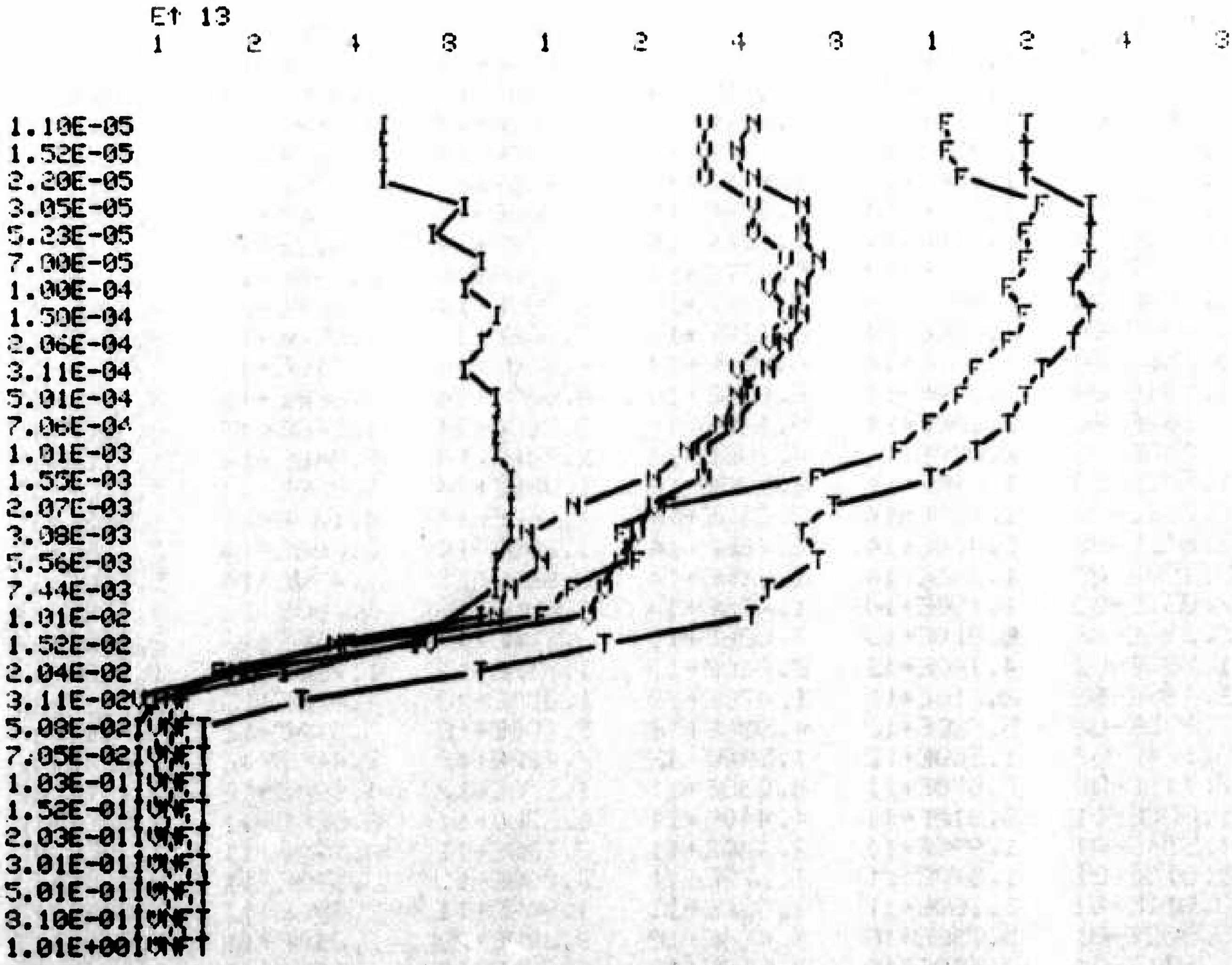
7.441E-03	1.562E-01	4.238E-01	3.035E-01	7.895E-01	1.673E+00
1.006E-02	2.054E-01	5.240E-01	3.606E-01	8.764E-01	1.966E+00
1.521E-02	2.857E-01	6.464E-01	4.249E-01	9.511E-01	2.308E+00
2.045E-02	3.296E-01	6.857E-01	4.517E-01	9.763E-01	2.443E+00
3.115E-02	3.556E-01	7.091E-01	4.781E-01	1.002E+00	2.545E+00
5.081E-02	3.671E-01	7.208E-01	4.951E-01	1.025E+00	2.608E+00
7.047E-02	3.717E-01	7.258E-01	5.035E-01	1.037E+00	2.638E+00
1.032E-01	3.762E-01	7.310E-01	5.108E-01	1.049E+00	2.667E+00
1.524E-01	3.806E-01	7.359E-01	5.185E-01	1.061E+00	2.697E+00
2.032E-01	3.839E-01	7.397E-01	5.244E-01	1.070E+00	2.718E+00
3.014E-01	3.883E-01	7.446E-01	5.311E-01	1.082E+00	2.746E+00
5.005E-01	3.935E-01	7.502E-01	5.393E-01	1.096E+00	2.779E+00
8.101E-01	3.979E-01	7.551E-01	5.470E-01	1.108E+00	2.808E+00
1.009E+00	3.997E-01	7.571E-01	5.502E-01	1.114E+00	2.821E+00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1.01E+00

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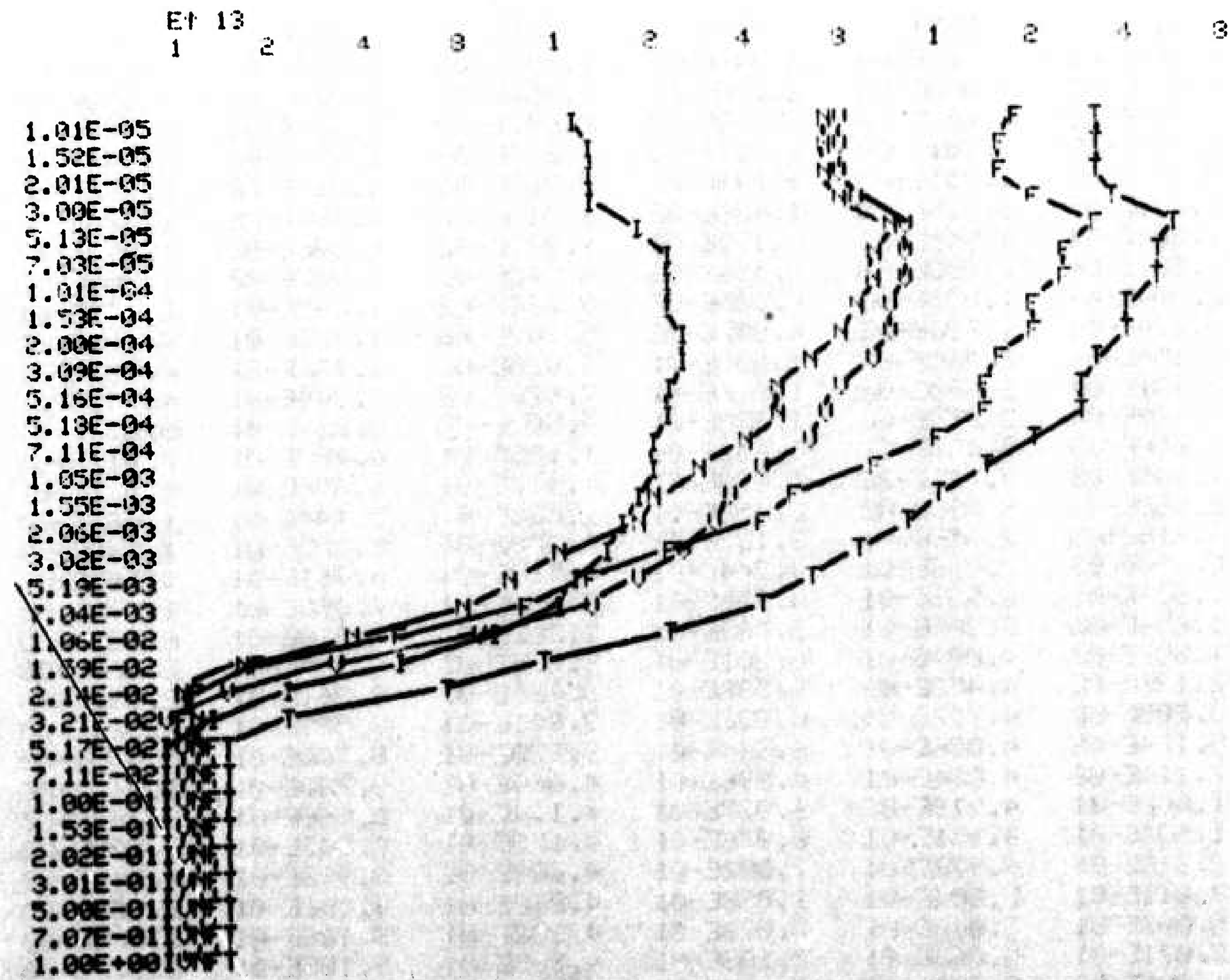
TIME	IRP	VISP	NRUV	FRUV	TOTP
1.010E-05	1.240E+14	6.920E+14	6.280E+14	2.020E+15	3.470E+15
1.523E-05	1.400E+14	6.970E+14	6.230E+14	1.990E+15	3.450E+15
2.005E-05	1.410E+14	7.030E+14	6.240E+14	1.960E+15	3.420E+15
3.004E-05	1.450E+14	7.900E+14	7.140E+14	2.280E+15	3.920E+15
5.130E-05	1.990E+14	1.040E+15	9.460E+14	3.330E+15	5.510E+15
7.033E-05	2.350E+14	1.050E+15	8.860E+14	2.830E+15	5.000E+15
1.008E-04	2.410E+14	1.060E+15	8.770E+14	2.810E+15	4.990E+15
1.527E-04	2.450E+14	9.670E+14	7.480E+14	2.430E+15	4.400E+15
2.004E-04	2.490E+14	9.410E+14	6.900E+14	2.220E+15	4.100E+15
3.094E-04	2.680E+14	8.280E+14	5.600E+14	1.870E+15	3.520E+15
5.156E-04	2.360E+14	6.850E+14	4.920E+14	1.810E+15	3.230E+15
5.181E-04	2.340E+14	6.630E+14	4.680E+14	1.680E+15	3.050E+15
7.109E-04	2.200E+14	5.640E+14	3.760E+14	1.260E+15	2.420E+15
1.050E-03	2.050E+14	4.390E+14	2.740E+14	8.540E+14	1.770E+15
1.545E-03	1.890E+14	3.590E+14	1.980E+14	5.080E+14	1.250E+15
2.062E-03	1.720E+14	3.260E+14	1.740E+14	4.130E+14	1.090E+15
3.016E-03	1.490E+14	2.460E+14	1.200E+14	2.260E+14	7.410E+14
5.190E-03	1.290E+14	1.880E+14	8.860E+13	1.470E+14	5.520E+14
7.039E-03	1.130E+14	1.430E+14	6.500E+13	9.760E+13	4.190E+14
1.056E-02	8.010E+13	7.020E+13	3.180E+13	4.130E+13	2.230E+14
1.587E-02	4.140E+13	2.760E+13	1.550E+13	1.720E+13	1.020E+14
2.139E-02	2.210E+13	1.470E+13	1.050E+13	1.070E+13	5.790E+13
3.205E-02	5.920E+12	4.930E+12	5.700E+12	5.510E+12	2.210E+13
5.174E-02	1.560E+12	1.590E+12	2.420E+12	2.440E+12	8.020E+12
7.110E-02	7.870E+11	8.830E+11	1.370E+12	1.690E+12	4.730E+12
1.002E-01	3.810E+11	4.440E+11	6.670E+11	8.500E+11	2.340E+12
1.534E-01	1.990E+11	2.440E+11	3.720E+11	4.870E+11	1.300E+12
2.018E-01	1.570E+11	1.870E+11	2.790E+11	3.590E+11	9.820E+11
3.011E-01	1.160E+11	1.320E+11	1.940E+11	2.390E+11	6.800E+11
5.003E-01	5.730E+10	6.460E+10	9.890E+10	1.240E+11	3.450E+11
7.071E-01	3.600E+10	3.960E+10	6.260E+10	8.260E+10	2.210E+11
1.005E+00	2.230E+10	2.370E+10	3.910E+10	5.660E+10	1.420E+11

TIME	INTI	INTU	INTN	INTF	INTT
1.010E-05	2.386E-04	1.345E-03	1.192E-03	3.774E-03	6.550E-03
1.523E-05	4.080E-04	2.200E-03	1.958E-03	6.228E-03	1.079E-02
2.005E-05	5.692E-04	2.998E-03	2.667E-03	8.463E-03	1.470E-02
3.004E-05	9.101E-04	4.782E-03	4.263E-03	1.354E-02	2.349E-02
5.130E-05	1.851E-03	9.749E-03	8.960E-03	3.010E-02	5.066E-02
7.033E-05	2.913E-03	1.456E-02	1.313E-02	4.388E-02	7.448E-02
1.008E-04	4.540E-03	2.198E-02	1.933E-02	6.336E-02	1.092E-01
1.527E-04	7.658E-03	3.456E-02	2.943E-02	9.927E-02	1.709E-01
2.004E-04	1.039E-02	4.523E-02	3.736E-02	1.245E-01	2.175E-01
3.094E-04	1.736E-02	6.807E-02	5.347E-02	1.777E-01	3.166E-01
5.156E-04	2.960E-02	1.055E-01	8.020E-02	2.732E-01	4.885E-01
5.181E-04	2.800E-02	1.026E-01	7.870E-02	2.649E-01	4.742E-01
7.109E-04	3.777E-02	1.272E-01	9.503E-02	3.232E-01	5.832E-01
1.050E-03	5.488E-02	1.662E-01	1.195E-01	4.009E-01	7.415E-01
1.545E-03	7.743E-02	2.070E-01	1.427E-01	4.656E-01	8.927E-01
2.062E-03	9.899E-02	2.458E-01	1.630E-01	5.144E-01	1.022E+00
3.016E-03	1.352E-01	3.137E-01	1.988E-01	5.925E-01	1.240E+00
5.190E-03	2.066E-01	4.244E-01	2.519E-01	6.861E-01	1.569E+00
7.039E-03	2.593E-01	4.955E-01	2.852E-01	7.368E-01	1.777E+00
1.056E-02	3.385E-01	5.783E-01	3.222E-01	7.888E-01	2.028E+00
1.587E-02	4.094E-01	6.301E-01	3.475E-01	8.195E-01	2.206E+00
2.139E-02	4.453E-01	6.538E-01	3.629E-01	8.361E-01	2.298E+00
3.205E-02	4.717E-01	6.732E-01	3.821E-01	8.539E-01	2.381E+00
5.174E-02	4.836E-01	6.844E-01	3.970E-01	8.700E-01	2.435E+00
7.110E-02	4.884E-01	6.896E-01	4.060E-01	8.780E-01	2.462E+00
1.002E-01	4.919E-01	6.937E-01	4.114E-01	8.866E-01	2.484E+00
1.534E-01	4.951E-01	6.976E-01	4.173E-01	8.947E-01	2.505E+00
2.018E-01	4.972E-01	7.000E-01	4.208E-01	8.992E-01	2.517E+00
3.011E-01	5.004E-01	7.038E-01	4.268E-01	9.062E-01	2.537E+00
5.003E-01	5.040E-01	7.078E-01	4.332E-01	9.128E-01	2.558E+00
7.071E-01	5.062E-01	7.103E-01	4.365E-01	9.185E-01	2.572E+00
1.005E+00	5.081E-01	7.124E-01	4.405E-01	9.225E-01	2.583E+00

PLTPOW



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1.53E-04
2.00E-04
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1.55E-03
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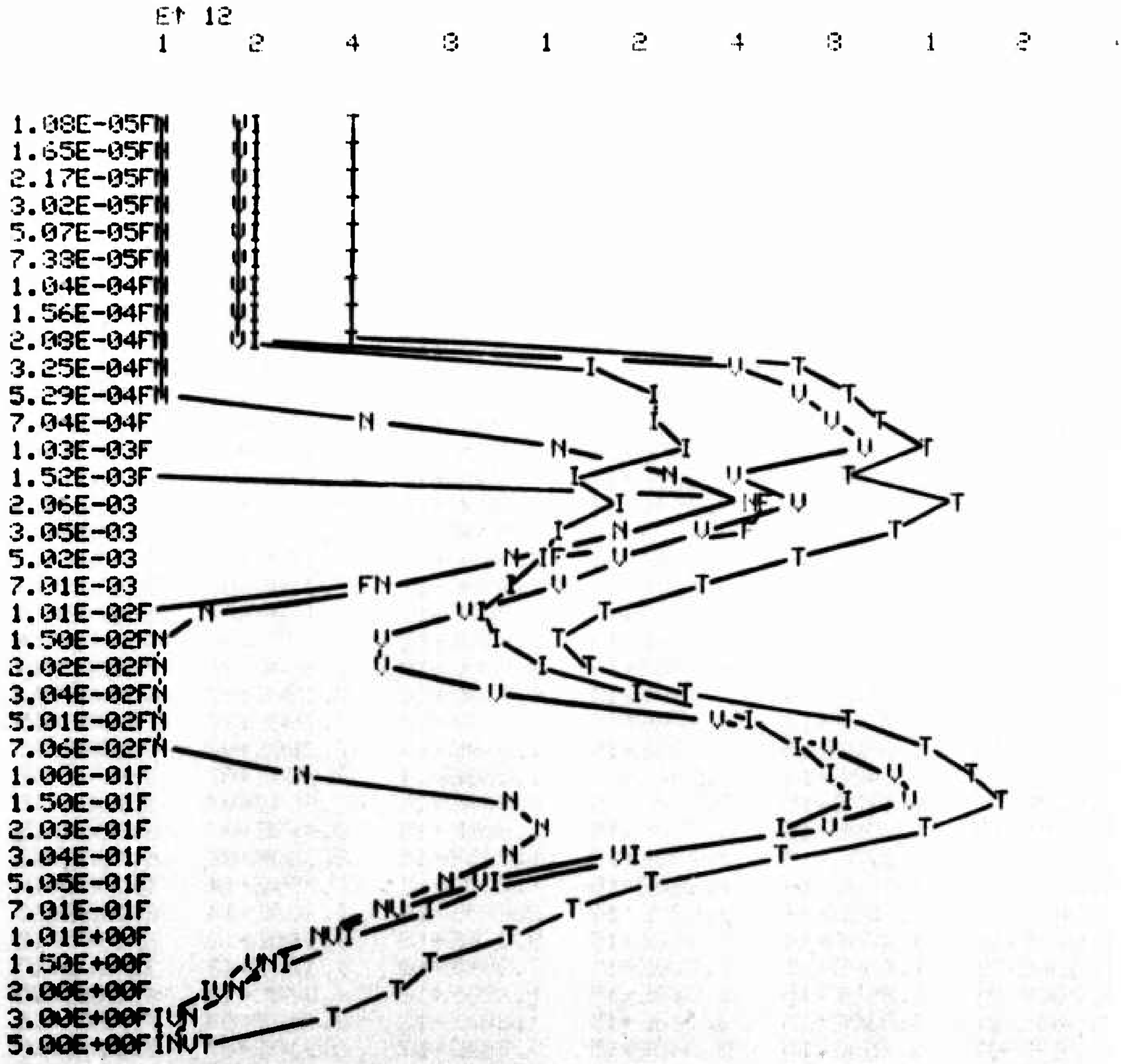
1.00E-01
1.53E-01
2.02E-01
3.01E-01
5.00E-01
7.07E-01
1.00E+00

CASE 40 / 10

TIME	IRP	VISP	NRUU	FRUU	TOTP
1.084E-05	1.790E+12	1.680E+12	1.380E+10	1.280E+06	3.480E+12
1.654E-05	1.790E+12	1.680E+12	1.380E+10	1.280E+06	3.480E+12
2.166E-05	1.790E+12	1.680E+12	1.380E+10	1.280E+06	3.480E+12
3.020E-05	1.790E+12	1.680E+12	1.380E+10	1.280E+06	3.480E+12
5.071E-05	1.790E+12	1.680E+12	1.380E+10	1.280E+06	3.490E+12
7.377E-05	1.790E+12	1.680E+12	1.380E+10	1.290E+06	3.490E+12
1.040E-04	1.790E+12	1.680E+12	1.380E+10	1.280E+06	3.490E+12
1.559E-04	1.790E+12	1.680E+12	1.380E+10	1.280E+06	3.490E+12
2.078E-04	1.790E+12	1.680E+12	1.380E+10	1.280E+06	3.490E+12
3.246E-04	1.600E+13	3.910E+13	1.380E+10	1.280E+06	5.520E+13
5.290E-04	2.400E+13	5.700E+13	1.800E+10	1.300E+06	8.110E+13
7.041E-04	2.400E+13	6.670E+13	3.940E+12	1.320E+06	9.460E+13
1.033E-03	2.720E+13	8.370E+13	1.220E+13	1.380E+06	1.230E+14
1.522E-03	1.350E+13	3.700E+13	2.640E+13	2.680E+06	7.690E+13
2.064E-03	1.870E+13	5.510E+13	4.450E+13	4.470E+13	1.630E+14
3.049E-03	1.310E+13	3.040E+13	1.900E+13	4.190E+13	1.050E+14
5.020E-03	1.130E+13	1.980E+13	9.320E+12	1.320E+13	5.570E+13
7.015E-03	9.470E+12	1.260E+13	4.240E+12	3.930E+12	3.020E+13
1.010E-02	8.110E+12	7.000E+12	1.430E+12	3.360E+11	1.740E+13
1.501E-02	8.840E+12	4.090E+12	2.010E+11	6.100E+10	1.320E+13
2.020E-02	1.140E+13	4.150E+12	2.690E+10	2.560E+09	1.550E+13
3.037E-02	2.110E+13	8.300E+12	4.640E+09	2.580E+08	2.940E+13
5.013E-02	4.360E+13	3.580E+13	1.930E+10	3.230E+05	7.940E+13
7.056E-02	5.780E+13	6.780E+13	2.950E+11	5.390E+05	1.260E+14
1.003E-01	7.030E+13	1.030E+14	2.670E+12	1.530E+06	1.760E+14
1.502E-01	7.460E+13	1.210E+14	9.520E+12	8.380E+06	2.050E+14
2.028E-01	5.310E+13	6.670E+13	1.110E+13	3.130E+07	1.310E+14
3.036E-01	2.060E+13	2.000E+13	9.340E+12	1.200E+08	4.990E+13
5.053E-01	8.690E+12	7.810E+12	6.330E+12	7.240E+08	2.280E+13
7.013E-01	5.510E+12	4.830E+12	4.380E+12	2.470E+09	1.470E+13
1.008E+00	3.350E+12	2.920E+12	2.790E+12	3.700E+09	9.070E+12
1.502E+00	2.020E+12	1.950E+12	2.010E+12	4.270E+09	5.990E+12
2.005E+00	1.410E+12	1.540E+12	1.650E+12	3.570E+09	4.610E+12
3.002E+00	8.770E+11	1.060E+12	1.080E+12	2.240E+09	3.020E+12
5.005E+00	4.030E+11	5.320E+11	4.890E+11	9.600E+08	1.430E+12

TIME	INTI	INTV	INTN	INTF	INTT
1.084E-05	4.220E-06	3.951E-06	3.300E-08	-1.600E-10	8.204E-06
1.654E-05	6.661E-06	6.234E-06	5.500E-08	-3.330E-09	1.295E-05
2.166E-05	8.868E-06	8.289E-06	6.300E-08	5.630E-09	1.723E-05
3.020E-05	1.252E-05	1.171E-05	1.000E-07	-3.120E-09	2.433E-05
5.071E-05	2.131E-05	1.933E-05	7.700E-07	-6.053E-07	4.080E-05
7.377E-05	3.119E-05	2.918E-05	2.500E-07	-9.000E-09	6.061E-05
1.040E-04	4.417E-05	4.133E-05	3.400E-07	1.100E-09	8.584E-05
1.559E-04	6.642E-05	6.215E-05	5.300E-07	-1.720E-08	1.291E-04
2.078E-04	8.868E-05	8.297E-05	-4.435E-05	4.503E-05	1.723E-04
3.246E-04	2.395E-04	3.940E-04	1.100E-06	-2.900E-08	6.346E-04
5.290E-04	1.107E-03	2.485E-03	2.000E-06	-1.830E-07	3.594E-03
7.041E-04	2.082E-03	5.159E-03	1.190E-04	-4.000E-07	7.360E-03
1.033E-03	4.144E-03	1.144E-02	1.066E-03	6.360E-04	1.729E-02
1.522E-03	6.588E-03	1.923E-02	5.612E-03	4.500E-04	3.188E-02
2.064E-03	9.061E-03	2.673E-02	1.166E-02	7.271E-03	5.472E-02
3.049E-03	1.245E-02	3.539E-02	1.770E-02	2.154E-02	8.708E-02
5.020E-03	1.753E-02	4.497E-02	2.260E-02	2.968E-02	1.148E-01
7.015E-03	2.242E-02	5.232E-02	2.556E-02	3.298E-02	1.333E-01
1.010E-02	2.907E-02	5.962E-02	2.751E-02	3.452E-02	1.507E-01
1.501E-02	3.903E-02	6.583E-02	2.814E-02	3.478E-02	1.678E-01
2.020E-02	5.148E-02	7.070E-02	2.822E-02	3.480E-02	1.852E-01
3.037E-02	8.994E-02	8.471E-02	2.825E-02	3.479E-02	2.377E-01
5.013E-02	2.442E-01	1.860E-01	2.830E-02	3.478E-02	4.933E-01
7.056E-02	4.938E-01	4.386E-01	2.880E-02	3.482E-02	9.960E-01
1.003E-01	9.560E-01	1.066E+00	3.800E-02	3.552E-02	2.096E+00
1.502E-01	1.842E+00	2.475E+00	1.100E-01	3.510E-02	4.462E+00
2.028E-01	2.675E+00	3.729E+00	2.490E-01	3.470E-02	6.688E+00
3.036E-01	3.402E+00	4.494E+00	4.930E-01	3.430E-02	8.423E+00
5.053E-01	4.015E+00	5.065E+00	8.640E-01	3.500E-02	9.979E+00
7.013E-01	4.335E+00	3.349E+00	1.106E+00	3.900E-02	1.083E+01
1.008E+00	4.647E+00	5.621E+00	1.362E+00	3.700E-02	1.167E+01
1.502E+00	4.950E+00	5.896E+00	1.634E+00	3.700E-02	1.252E+01
2.005E+00	5.151E+00	6.102E+00	1.857E+00	3.300E-02	1.314E+01
3.002E+00	5.414E+00	6.407E+00	2.179E+00	3.300E-02	1.403E+01
5.005E+00	5.697E+00	6.769E+00	2.524E+00	4.000E-02	1.503E+01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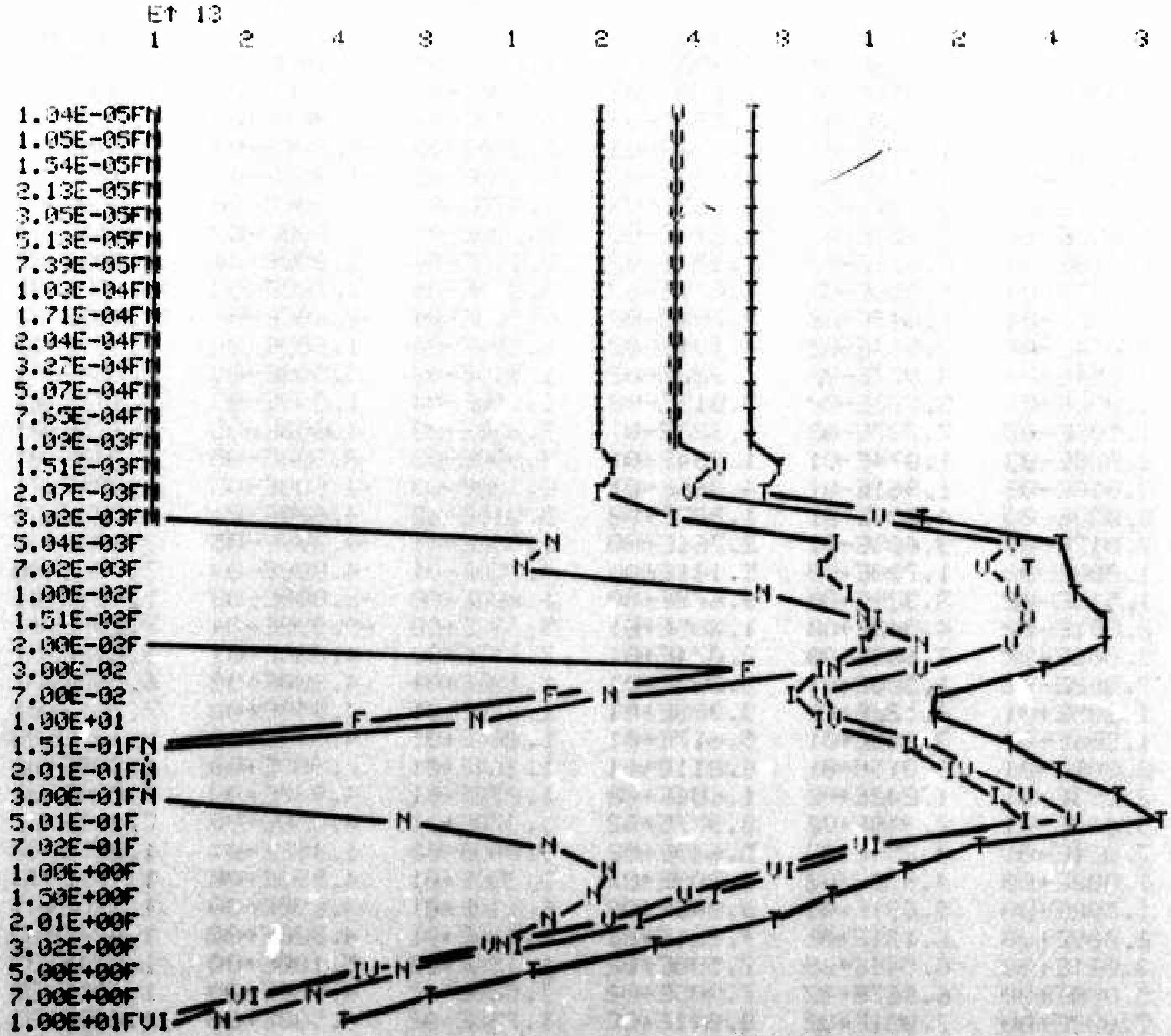
CASE 4000 / 25

TIME	IRP	VISP	NRUV	FRUV	TOTP
1.042E-05	2.130E+14	3.500E+14	7.980E+12	7.170E+07	5.710E+14
1.053E-05	2.130E+14	3.500E+14	7.980E+12	7.170E+07	5.710E+14
1.538E-05	2.130E+14	3.500E+14	7.980E+12	7.170E+07	5.710E+14
2.129E-05	2.130E+14	3.500E+14	7.980E+12	7.170E+07	5.710E+14
3.049E-05	2.130E+14	3.500E+14	7.980E+12	7.170E+07	5.710E+14
5.126E-05	2.130E+14	3.500E+14	7.980E+12	7.170E+07	5.710E+14
7.391E-05	2.130E+14	3.500E+14	7.980E+12	7.170E+07	5.710E+14
1.030E-04	2.130E+14	3.500E+14	7.980E+12	7.170E+07	5.710E+14
1.710E-04	2.130E+14	3.490E+14	7.980E+12	7.170E+07	5.700E+14
2.037E-04	2.130E+14	3.490E+14	7.980E+12	7.170E+07	5.700E+14
3.272E-04	2.130E+14	3.490E+14	7.990E+12	7.170E+07	5.700E+14
5.074E-04	2.130E+14	3.460E+14	7.990E+12	7.170E+07	5.670E+14
7.654E-04	2.130E+14	3.450E+14	8.000E+12	7.170E+07	5.660E+14
1.092E-03	2.130E+14	3.450E+14	8.010E+12	7.170E+07	5.660E+14
1.506E-03	2.280E+14	4.820E+14	8.090E+12	7.180E+07	7.180E+14
2.070E-03	2.190E+14	3.790E+14	8.310E+12	7.180E+07	6.060E+14
3.016E-03	3.570E+14	1.470E+15	9.970E+12	7.190E+07	1.840E+15
5.039E-03	1.080E+15	3.330E+15	1.560E+14	7.220E+07	4.570E+15
7.017E-03	9.540E+14	2.830E+15	1.280E+14	7.300E+07	3.910E+15
1.000E-02	1.110E+15	3.350E+15	6.470E+14	7.960E+07	5.100E+15
1.515E-02	1.320E+15	3.740E+15	1.220E+15	8.470E+07	6.280E+15
2.001E-02	1.270E+15	3.390E+15	1.940E+15	8.380E+07	6.600E+15
3.002E-02	9.250E+14	1.880E+15	1.020E+15	5.590E+14	4.390E+15
7.002E-02	7.750E+14	9.620E+14	2.220E+14	1.620E+14	2.120E+15
1.005E+01	9.470E+14	1.080E+15	9.370E+13	4.180E+13	2.160E+15
1.506E-01	1.650E+15	1.770E+15	7.390E+12	1.140E+12	3.430E+15
2.008E-01	2.260E+15	2.580E+15	1.420E+12	6.880E+10	4.840E+15
3.003E-01	3.060E+15	3.960E+15	1.200E+12	2.010E+09	7.020E+15
5.009E-01	3.750E+15	5.380E+15	5.960E+13	2.910E+07	9.190E+15
7.021E-01	1.420E+15	1.320E+15	1.500E+14	7.130E+07	2.900E+15
1.002E+00	7.850E+14	7.180E+14	2.350E+14	3.350E+08	1.740E+15
1.502E+00	4.580E+14	3.980E+14	2.150E+14	1.460E+09	1.070E+15
2.009E+00	2.790E+14	2.330E+14	1.640E+14	3.080E+09	6.760E+14
3.021E+00	1.120E+14	1.050E+14	1.070E+14	7.110E+09	3.230E+14
5.000E+00	4.060E+13	4.180E+13	5.830E+13	3.230E+10	1.410E+14
7.002E+00	1.950E+13	1.920E+13	3.150E+13	8.340E+10	7.030E+13
1.001E+01	1.140E+13	9.730E+12	1.770E+13	1.330E+11	3.900E+13

TIME	INTI	INTV	INTN	INTF	INTT
1.042E-05	4.802E-04	7.890E-04	1.780E-05	5.100E-07	1.288E-03
1.053E-05	4.473E-04	7.350E-04	1.670E-05	2.800E-07	1.199E-03
1.538E-05	6.942E-04	1.140E-03	2.680E-05	-5.700E-07	1.860E-03
2.129E-05	9.952E-04	1.634E-03	3.379E-04	-3.003E-04	2.667E-03
3.049E-05	1.360E-03	2.234E-03	5.200E-05	-8.200E-07	3.645E-03
5.126E-05	2.418E-03	3.970E-03	9.100E-05	-1.999E-07	6.479E-03
7.391E-05	3.571E-03	5.863E-03	1.350E-04	-1.000E-06	9.568E-03
1.030E-04	5.054E-03	8.296E-03	1.900E-04	-5.000E-07	1.354E-02
1.710E-04	8.514E-03	1.397E-02	3.160E-04	3.200E-06	2.280E-02
2.037E-04	1.018E-02	1.671E-02	3.800E-04	1.700E-06	2.727E-02
3.272E-04	1.647E-02	2.700E-02	6.200E-04	-2.600E-06	4.409E-02
5.074E-04	2.564E-02	4.191E-02	9.600E-04	1.600E-06	6.851E-02
7.654E-04	3.877E-02	6.322E-02	1.510E-03	-5.500E-05	1.034E-01
1.092E-03	5.538E-02	9.013E-02	1.900E-04	1.889E-03	1.476E-01
1.506E-03	7.737E-02	1.323E-01	2.830E-03	4.600E-05	2.125E-01
2.070E-03	1.074E-01	1.934E-01	3.900E-03	8.300E-05	3.048E-01
3.016E-03	1.961E-01	4.366E-01	6.700E-03	-4.600E-05	6.394E-01
5.039E-03	4.839E-01	1.273E+00	3.010E-02	4.600E-04	1.787E+00
7.017E-03	9.688E-01	2.761E+00	1.082E-01	-9.999E-05	3.838E+00
1.000E-02	1.790E+00	5.181E+00	4.350E-01	4.000E-04	7.406E+00
1.515E-02	3.328E+00	9.678E+00	1.604E+00	-2.000E-03	1.461E+01
2.001E-02	4.842E+00	1.385E+01	3.378E+00	-9.999E-04	2.207E+01
3.002E-02	7.663E+00	2.074E+01	7.297E+00	4.230E-01	3.612E+01
7.002E-02	1.505E+01	3.203E+01	1.122E+01	4.300E+00	6.260E+01
1.005E+01	2.122E+01	3.928E+01	1.226E+01	4.850E+00	7.761E+01
1.506E-01	3.659E+01	5.617E+01	1.264E+01	4.940E+00	1.103E+02
2.008E-01	6.015E+01	8.211E+01	1.264E+01	4.980E+00	1.599E+02
3.003E-01	1.242E+02	1.606E+02	1.270E+01	4.940E+00	3.024E+02
5.009E-01	2.948E+02	3.977E+02	1.370E+01	4.850E+00	7.111E+02
7.021E-01	4.259E+02	5.649E+02	9.000E+00	1.488E+01	1.015E+03
1.002E+00	4.976E+02	6.209E+02	3.350E+01	4.890E+00	1.157E+03
1.502E+00	5.691E+02	6.848E+02	6.110E+01	4.690E+00	1.320E+03
2.009E+00	6.131E+02	7.221E+02	8.380E+01	4.820E+00	1.424E+03
3.021E+00	6.546E+02	7.590E+02	1.154E+02	5.100E+00	1.534E+03
5.000E+00	6.867E+02	7.905E+02	1.528E+02	4.900E+00	1.635E+03
7.002E+00	7.001E+02	8.041E+02	1.738E+02	4.500E+00	1.682E+03
1.001E+01	7.105E+02	8.137E+02	1.898E+02	5.000E+00	1.719E+03


E↑ 13
1 2 4 8 1 2 4 8 1 2 4 8
1.04E-05F
1.05E-05F
1.54E-05F
2.13E-05F
3.05E-05F
5.13E-05F
7.39E-05F
1.03E-04F
1.71E-04F
2.04E-04F
3.27E-04F
5.07E-04F
7.65E-04F
1.03E-03F
1.51E-03F
2.07E-03F
3.02E-03F
5.04E-03F
7.02E-03F
1.00E-02F
1.51E-02F
2.00E-02F
3.00E-02
7.00E-02
1.00E+01
1.51E-01F
2.01E-01F
3.00E-01F
5.01E-01F
7.02E-01F
1.00E+00F
1.50E+00F
2.01E+00F
3.02E+00F
5.00E+00F
7.00E+00F
1.00E+01F

APPENDIX B

RESULTS OF DATA EXTRACTION AND MODIFICATION

The fractional power in each of the six frequency bands varies widely with time, as is seen in Figure 6 of this report. In order to help simplify the analytical expressions in subroutine RADOUT, the fractional power in each of the frequency bands was averaged within each of the six time bands.

On each of the following pages, the six time bands are separated by the time of the time band trailing edge (e.g., 1.000 E-4, 3.955 E-4, 6.010 E-3, 5.127 E-2, 5.685 E-1, 1.101 E+0 seconds, page 74). At each of these times, the average value of fractional power to total power in each of the six wavelength (or equivalent photon energy) bands is given. When the average values are compared to specific fractions in each time band for each of the energy bands, generally there is reasonable correspondence.

CASE 5 / 3

AVERAGE FRACTIONAL POWER IN DIFFERENT SPECTRAL BANDS

TIME	IRPOW	REDPOW	GRNPOW	BLUPOW	NUVPOW	FUVPOW
1.042E-05	.269	.139	.243	.349	.001	.000
1.612E-05	.265	.138	.242	.352	.000	.000
2.125E-05	.227	.135	.258	.382	.000	.000
3.278E-05	.279	.166	.320	.234	.000	.000
5.393E-05	.061	.035	.067	.145	.271	.421
7.122E-05	.097	.058	.112	.253	.480	.000
1.000E-04	.200	.112	.207	.286	.125	.070
1.029E-04	.020	.012	.024	.055	.108	.782
1.548E-04	.022	.013	.026	.058	.112	.770
2.067E-04	.024	.014	.028	.062	.117	.755
3.170E-04	.028	.016	.031	.067	.123	.732
3.955E-04	.023	.014	.027	.061	.115	.760
5.019E-04	.037	.021	.038	.079	.137	.685
7.355E-04	.087	.042	.071	.128	.179	.496
1.064E-03	.101	.047	.079	.137	.183	.455
1.524E-03	.187	.075	.113	.171	.183	.269
2.049E-03	.214	.082	.120	.174	.178	.233
3.002E-03	.333	.106	.140	.171	.138	.114
5.021E-03	.586	.131	.140	.088	.039	.015
6.010E-03	.221	.072	.100	.136	.148	.324
7.164E-03	.746	.115	.101	.027	.006	.001
1.005E-02	.784	.110	.091	.016	.001	.000
1.514E-02	.698	.144	.128	.029	.000	.000
2.022E-02	.614	.163	.166	.055	.000	.000
3.023E-02	.487	.168	.215	.130	.003	.000
5.035E-02	.379	.153	.223	.224	.022	.000
5.127E-02	.618	.142	.154	.080	.005	.000
7.024E-02	.353	.143	.213	.245	.047	.000
1.011E-01	.365	.131	.179	.246	.081	.000
1.505E-01	.417	.106	.085	.210	.185	.000
2.010E-01	.385	.090	.075	.201	.249	.000
3.003E-01	.355	.079	.072	.205	.291	.000
5.015E-01	.334	.073	.074	.218	.302	.000
5.685E-01	.368	.104	.116	.221	.192	.000
5.823E-01	.331	.073	.075	.222	.301	.000
7.010E-01	.324	.072	.076	.228	.298	.000
8.020E-01	.319	.072	.077	.234	.298	.000
1.101E+00	.308	.072	.078	.243	.298	.000
1.101E+00	.320	.072	.076	.232	.299	.000

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AVERAGE FRACTIONAL POWER IN DIFFERENT SPECTRAL BANDS

TIME	IRPOW	REDPOW	GRNPOW	BLUPOW	NUVPOW	FUVPOW
1.008E-05	.319	.141	.248	.264	.023	.000
1.649E-05	.256	.137	.277	.322	.010	.000
2.161E-05	.236	.134	.284	.340	.007	.000
3.186E-05	.178	.142	.364	.316	.001	.000
5.134E-05	.159	.097	.189	.328	.226	.000
7.095E-05	.174	.107	.213	.353	.152	.000
1.000E-04	.221	.126	.263	.320	.070	.000
1.055E-04	.139	.083	.161	.333	.283	.000
1.505E-04	.126	.075	.146	.314	.340	.000
2.024E-04	.030	.018	.034	.075	.141	.706
3.062E-04	.026	.015	.029	.064	.118	.747
5.109E-04	.080	.048	.092	.197	.220	.363
5.138E-04	.036	.020	.038	.078	.134	.689
7.182E-04	.050	.027	.048	.095	.151	.629
1.039E-03	.085	.041	.070	.126	.175	.501
1.521E-03	.141	.061	.095	.154	.184	.366
2.046E-03	.204	.079	.117	.171	.177	.250
3.032E-03	.293	.101	.144	.178	.144	.140
5.002E-03	.505	.136	.171	.103	.058	.028
5.550E-03	.188	.067	.097	.129	.146	.372
7.022E-03	.602	.151	.187	.044	.012	.004
1.013E-02	.599	.155	.215	.030	.001	.000
1.500E-02	.523	.170	.228	.075	.000	.000
2.015E-02	.470	.165	.219	.142	.001	.000
3.039E-02	.395	.157	.221	.215	.011	.000
3.482E-02	.518	.160	.214	.101	.005	.001
5.034E-02	.336	.141	.213	.256	.055	.000
7.004E-02	.327	.131	.193	.262	.087	.000
1.014E-01	.394	.104	.091	.224	.185	.000
1.502E-01	.366	.084	.066	.188	.297	.000
2.007E-01	.339	.073	.062	.183	.341	.000
3.017E-01	.330	.068	.062	.187	.352	.000
3.861E-01	.349	.100	.114	.217	.220	.000
5.012E-01	.321	.065	.064	.194	.353	.002
8.017E-01	.307	.064	.067	.204	.357	.005
1.001E+00	.295	.062	.067	.210	.365	.004
1.001E+00	.308	.064	.066	.203	.358	.004

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AVERAGE FRACTIONAL POWER IN DIFFERENT SPECTRAL BANDS

TIME	IRPOW	REDPOW	GRNPOW	BLUPOW	NUVPOW	FUVPOW
1.021E-05	.267	.118	.193	.286	.137	.000
1.557E-05	.265	.118	.194	.287	.137	.000
2.069E-05	.253	.117	.195	.294	.141	.000
3.308E-05	.154	.095	.193	.357	.201	.000
5.115E-05	.208	.101	.171	.284	.238	.000
7.152E-05	.151	.085	.160	.306	.299	.000
1.000E-04	.216	.106	.185	.302	.192	.000
1.032E-04	.143	.084	.161	.314	.299	.000
1.569E-04	.118	.070	.136	.288	.389	.000
2.114E-04	.125	.076	.152	.316	.330	.000
3.135E-04	.127	.072	.136	.282	.382	.000
5.033E-04	.123	.070	.131	.273	.405	.000
6.898E-04	.127	.075	.143	.295	.361	.000
7.091E-04	.078	.043	.079	.166	.277	.360
1.011E-03	.079	.043	.077	.163	.269	.366
1.508E-03	.069	.035	.060	.112	.165	.556
2.007E-03	.104	.048	.079	.136	.179	.454
3.065E-03	.223	.096	.157	.206	.140	.179
5.014E-03	.295	.114	.201	.192	.105	.095
5.055E-03	.141	.063	.109	.162	.189	.335
7.044E-03	.343	.145	.254	.197	.050	.012
1.015E-02	.365	.162	.267	.189	.015	.001
1.514E-02	.346	.154	.247	.245	.007	.000
2.003E-02	.326	.144	.228	.283	.019	.000
2.212E-02	.345	.151	.249	.229	.023	.003
3.001E-02	.301	.130	.202	.285	.082	.000
5.071E-02	.331	.109	.146	.242	.172	.000
7.091E-02	.321	.074	.062	.192	.350	.000
1.001E-01	.310	.050	.052	.174	.397	.000
1.523E-01	.325	.061	.048	.164	.401	.004
2.002E-01	.335	.058	.047	.156	.382	.022
2.453E-01	.320	.080	.093	.202	.297	.004
3.013E-01	.330	.053	.044	.138	.332	.104
5.020E-01	.248	.039	.034	.109	.278	.294
8.012E-01	.194	.030	.028	.092	.243	.412
1.002E+00	.176	.027	.027	.089	.240	.440
1.002E+00	.237	.037	.033	.107	.273	.312

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AVERAGE FRACTIONAL POWER IN DIFFERENT SPECTRAL BANDS

TIME	IRPOW	REDPOW	GRNPOW	BLUPOW	NUVPOW	FUVPOW
1.047E-05	.228	.101	.164	.262	.244	.002
1.560E-05	.227	.101	.163	.261	.244	.004
2.021E-05	.084	.066	.138	.301	.407	.004
3.097E-05	.125	.075	.144	.286	.367	.003
5.115E-05	.214	.096	.155	.254	.261	.019
7.018E-05	.043	.044	.111	.297	.498	.007
1.000E-04	.154	.081	.146	.277	.337	.006
1.036E-04	.133	.076	.143	.284	.365	.004
1.556E-04	.070	.069	.143	.289	.414	.011
2.045E-04	.175	.086	.148	.265	.322	.004
3.120E-04	.127	.073	.137	.278	.376	.011
5.041E-04	.131	.074	.137	.273	.358	.026
7.020E-04	.183	.087	.146	.255	.307	.023
8.383E-04	.137	.077	.142	.274	.357	.013
1.031E-03	.178	.080	.129	.213	.243	.159
1.512E-03	.105	.058	.107	.218	.337	.176
2.024E-03	.077	.046	.091	.194	.307	.285
3.126E-03	.090	.046	.081	.152	.220	.411
4.757E-03	.112	.058	.102	.194	.277	.258
5.022E-03	.169	.086	.150	.205	.116	.275
7.128E-03	.251	.114	.187	.269	.155	.023
1.013E-02	.241	.111	.183	.272	.179	.006
1.514E-02	.243	.112	.188	.278	.178	.000
1.648E-02	.226	.106	.178	.256	.157	.076
2.030E-02	.256	.116	.185	.279	.164	.000
3.052E-02	.284	.110	.163	.253	.192	.000
5.035E-02	.295	.064	.061	.189	.389	.000
7.055E-02	.278	.056	.051	.183	.425	.735
1.010E-01	.267	.050	.045	.178	.412	.048
1.515E-01	.247	.041	.037	.158	.352	.165
1.827E-01	.271	.073	.090	.207	.322	.158
2.020E-01	.219	.033	.030	.133	.283	.304
3.005E-01	.181	.024	.022	.103	.217	.451
5.031E-01	.151	.018	.018	.087	.190	.539
7.020E-01	.129	.C15	.016	.078	.182	.581
1.003E+00	.116	.013	.015	.073	.175	.608
1.003E+00	.159	.021	.020	.095	.209	.497

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AVERAGE FRACTIONAL POWER IN DIFFERENT SPECTRAL BANDS

TIME	IRPOW	REDPOW	GRNPOW	BLUPOW	NUVPOW	FUVPOW
1.062E-05	.120	.058	.095	.218	.426	.082
1.603E-05	.120	.058	.097	.250	.391	.085
2.030E-05	.158	.081	.138	.239	.286	.098
3.105E-05	.065	.031	.109	.253	.437	.107
5.065E-05	.053	.047	.112	.253	.428	.106
7.037E-05	.069	.052	.102	.206	.472	.097
1.000E-04	.097	.055	.109	.237	.407	.096
1.043E-04	.085	.041	.069	.233	.433	.140
1.605E-04	.067	.497	.109	.240	.384	.148
2.037E-04	.050	.047	.103	.236	.409	.156
3.000E-04	.121	.067	.117	.211	.277	.207
5.042E-04	.060	.048	.097	.207	.340	.247
7.258E-04	.111	.062	.109	.197	.261	.259
9.160E-04	.082	.127	.101	.221	.351	.193
1.039E-03	.107	.058	.101	.181	.236	.315
1.508E-03	.062	.041	.081	.165	.262	.390
2.003E-03	.092	.053	.093	.169	.225	.366
3.028E-03	.058	.036	.069	.136	.204	.497
4.628E-03	.080	.047	.086	.163	.232	.392
5.029E-03	.106	.048	.091	.164	.210	.381
7.074E-03	.093	.044	.075	.125	.153	.509
1.018E-02	.172	.082	.135	.217	.231	.162
1.441E-02	.124	.058	.100	.169	.198	.350
1.523E-02	.212	.100	.162	.258	.259	.011
2.028E-02	.235	.104	.164	.259	.237	.001
3.062E-02	.355	.093	.117	.196	.239	.000
5.065E-02	.276	.056	.052	.179	.429	.005
7.110E-02	.260	.049	.043	.168	.427	.052
1.018E-01	.234	.041	.035	.144	.360	.185
1.536E-01	.194	.029	.025	.108	.255	.390
1.598E-01	.252	.067	.086	.188	.315	.092
2.010E-01	.183	.025	.022	.094	.215	.463
3.002E-01	.160	.020	.018	.080	.185	.536
5.009E-01	.144	.016	.016	.070	.168	.588
8.050E-01	.120	.013	.013	.063	.160	.630
1.006E+00	.111	.012	.013	.061	.158	.646
1.006E+00	.144	.017	.016	.074	.177	.573

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AVERAGE FRACTIONAL POWER IN DIFFERENT SPECTRAL BANDS

TIME	IRPOW	REDPOW	GRNPOW	BLUPOW	NUVPOW	FUVPOW
1.021E-05	.115	.059	.100	.176	.225	.325
1.634E-05	.058	.041	.077	.210	.389	.223
2.061E-05	.060	.048	.096	.199	.315	.283
3.037E-05	.046	.021	.034	.194	.410	.294
5.078E-05	.064	.049	.095	.198	.323	.274
7.027E-05	.039	.034	.080	.189	.341	.318
1.000E-04	.064	.042	.080	.194	.334	.286
1.004E-04	.039	.033	.080	.191	.343	.314
1.554E-04	.043	.040	.083	.177	.294	.365
2.008E-04	.056	.026	.043	.160	.286	.429
3.076E-04	.051	.036	.071	.145	.283	.414
5.235E-04	.088	.048	.084	.153	.209	.416
7.006E-04	.048	.032	.066	.144	.236	.473
9.760E-04	.054	.036	.071	.162	.275	.402
1.099E-03	.084	.048	.083	.151	.207	.427
1.525E-03	.065	.030	.049	.120	.198	.538
2.040E-03	.083	.043	.075	.136	.185	.485
3.108E-03	.083	.042	.071	.122	.191	.489
4.537E-03	.079	.041	.069	.132	.195	.485
5.003E-03	.110	.054	.091	.164	.213	.369
7.189E-03	.120	.058	.096	.164	.203	.360
1.026E-02	.122	.057	.095	.159	.188	.379
1.309E-02	.117	.056	.094	.162	.201	.369
1.520E-02	.180	.083	.132	.216	.228	.160
2.031E-02	.259	.102	.149	.227	.241	.023
3.011E-02	.367	.077	.087	.175	.288	.005
5.057E-02	.267	.052	.048	.173	.427	.032
7.166E-02	.236	.043	.038	.154	.391	.137
1.008E-01	.188	.031	.027	.115	.286	.350
1.452E-01	.250	.065	.080	.177	.310	.118
1.507E-01	.178	.026	.022	.098	.231	.444
2.024E-01	.175	.022	.019	.086	.197	.500
3.017E-01	.163	.019	.017	.077	.177	.552
5.023E-01	.140	.015	.015	.069	.166	.594
7.094E-01	.128	.013	.014	.065	.163	.617
1.001E+00	.116	.012	.013	.062	.160	.637
1.001E+00	.150	.018	.017	.076	.182	.557

CASE 5 / 37

AVERAGE FRACTIONAL POWER IN DIFFERENT SPECTRAL BANDS

TIME	IRPOW	REDPOW	GRNPOW	BLUPOW	NUVPOW	FUVPOW
1.016E-05	.103	.076	.164	.463	1.000	1.766
1.555E-05	.031	.020	.047	.130	.277	.495
2.016E-05	.003	.022	.049	.123	.271	.507
3.007E-05	.027	.020	.046	.124	.262	.519
5.067E-05	.026	.023	.050	.012	.260	.519
7.071E-05	.028	.021	.048	.125	.252	.526
1.000E-04	.036	.031	.068	.163	.387	.722
1.033E-04	.030	.020	.046	.114	.244	.547
1.520E-04	.029	.020	.047	.113	.233	.560
2.004E-04	.031	.020	.044	.111	.227	.565
3.042E-04	.033	.021	.046	.112	.213	.575
5.187E-04	.040	.023	.045	.108	.207	.578
7.217E-04	.041	.024	.051	.112	.198	.577
1.019E-03	.049	.027	.050	.113	.192	.570
1.038E-03	.036	.022	.047	.112	.216	.568
1.525E-03	.051	.023	.055	.113	.185	.572
2.058E-03	.057	.030	.054	.116	.179	.561
3.018E-03	.087	.044	.075	.138	.192	.464
4.452E-03	.065	.034	.062	.122	.186	.532
5.145E-03	.109	.053	.089	.157	.201	.390
7.015E-03	.118	.055	.091	.156	.196	.385
1.023E-02	.137	.063	.102	.167	.200	.330
1.193E-02	.121	.057	.094	.160	.199	.369
1.502E-02	.174	.073	.114	.180	.202	.256
2.074E-02	.282	.074	.092	.151	.201	.200
3.017E-02	.249	.049	.051	.133	.286	.234
5.037E-02	.193	.036	.033	.131	.327	.280
7.057E-02	.168	.029	.026	.115	.284	.377
1.009E-01	.157	.024	.022	.100	.241	.456
1.323E-01	.204	.048	.056	.135	.257	.300
1.526E-01	.155	.021	.019	.090	.209	.505
2.019E-01	.159	.019	.017	.084	.188	.531
2.019E-01	.157	.020	.018	.087	.199	.518

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AVERAGE FRACTIONAL POWER IN DIFFERENT SPECTRAL BANDS

TIME	IRPOW	REDPOW	GRNPOW	BLUPOW	NUVPOW	FUVPOW
1.101E-05	.020	.016	.034	.089	.182	.664
1.520E-05	.020	.016	.036	.090	.177	.661
2.195E-05	.018	.015	.032	.086	.173	.678
3.047E-05	.019	.014	.031	.078	.160	.696
5.234E-05	.018	.014	.032	.085	.172	.678
7.002E-05	.022	.017	.037	.088	.174	.659
1.000E-04	.020	.016	.034	.072	.173	.673
1.003E-04	.022	.017	.036	.088	.170	.667
1.504E-04	.025	.019	.040	.091	.172	.653
2.058E-04	.024	.018	.039	.090	.168	.659
3.110E-04	.027	.019	.039	.089	.166	.663
5.009E-04	.035	.023	.046	.100	.166	.631
7.063E-04	.040	.025	.049	.100	.168	.615
1.013E-03	.050	.028	.052	.107	.171	.589
1.144E-03	.032	.021	.043	.095	.169	.640
1.550E-03	.074	.040	.070	.128	.181	.505
2.067E-03	.130	.062	.099	.159	.189	.362
3.083E-03	.156	.069	.106	.165	.188	.316
4.318E-03	.120	.057	.092	.151	.186	.394
5.564E-03	.144	.063	.100	.165	.192	.336
7.441E-03	.167	.069	.107	.167	.193	.297
1.006E-02	.176	.071	.108	.172	.197	.278
1.029E-02	.162	.068	.105	.168	.194	.304
1.521E-02	.310	.080	.096	.151	.181	.182
2.045E-02	.308	.062	.068	.135	.219	.209
3.115E-02	.218	.042	.042	.122	.283	.295
5.081E-02	.158	.028	.028	.116	.269	.400
7.047E-02	.157	.026	.027	.123	.274	.394
1.032E-01	.147	.022	.023	.124	.262	.421
1.141E-01	.217	.043	.047	.129	.248	.317
1.524E-01	.154	.020	.023	.129	.255	.419
2.032E-01	.157	.019	.022	.132	.254	.413
3.014E-01	.159	.018	.022	.135	.255	.412
5.005E-01	.152	.016	.021	.132	.260	.421
8.101E-01	.147	.015	.020	.127	.259	.430
1.009E+00	.143	.014	.020	.122	.256	.447
1.009E+00	.152	.017	.021	.130	.257	.424

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AVERAGE FRACTIONAL POWER IN DIFFERENT SPECTRAL BANDS

TIME	IRPOW	REDPOW	GRNPOW	BLUPOW	NUVPOW	FUVPOW
1.010E-05	.036	.271	.055	.117	.181	.582
1.523E-05	.041	.029	.057	.117	.181	.577
2.005E-05	.041	.029	.058	.119	.182	.573
3.004E-05	.037	.028	.055	.118	.182	.582
5.130E-05	.036	.026	.052	.109	.172	.604
7.033E-05	.047	.031	.060	.118	.177	.566
1.000E-04	.040	.069	.056	.116	.179	.581
1.008E-04	.048	.032	.060	.120	.176	.563
1.527E-04	.056	.036	.065	.121	.170	.552
2.004E-04	.061	.038	.068	.123	.168	.541
3.094E-04	.076	.042	.072	.121	.159	.531
5.156E-04	.073	.040	.064	.108	.152	.560
5.181E-04	.077	.041	.066	.110	.153	.551
7.109E-04	.091	.046	.071	.115	.155	.521
1.050E-03	.116	.052	.076	.120	.155	.482
1.326E-03	.075	.041	.068	.117	.161	.538
1.545E-03	.151	.062	.089	.137	.158	.406
2.062E-03	.158	.064	.093	.142	.160	.379
3.016E-03	.201	.074	.105	.152	.162	.305
4.125E-03	.170	.067	.096	.144	.160	.363
5.190E-03	.234	.079	.107	.154	.161	.266
7.039E-03	.270	.082	.107	.152	.155	.233
8.237E-03	.252	.081	.107	.153	.158	.250
1.056E-02	.359	.083	.094	.138	.143	.185
1.587E-02	.406	.073	.073	.125	.152	.169
2.139E-02	.382	.065	.063	.125	.181	.185
3.205E-02	.268	.047	.047	.129	.258	.249
5.174E-02	.195	.034	.034	.130	.302	.304
7.110E-02	.166	.028	.029	.130	.290	.357
9.134E-02	.296	.055	.057	.129	.221	.242
1.002E-01	.163	.024	.027	.139	.285	.363
1.534E-01	.153	.019	.023	.145	.286	.375
2.018E-01	.160	.018	.023	.149	.284	.366
3.011E-01	.171	.017	.023	.153	.285	.351
5.003E-01	.166	.016	.022	.149	.287	.359
7.071E-01	.163	.015	.022	.143	.283	.374
1.005E+00	.157	.014	.020	.133	.275	.399
1.005E+00	.162	.017	.023	.144	.284	.370

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